THE NEW YORK STATE

Conservationist

August-September 1951

STATE OF NEW YORK, CONSERVATION DEPARTMENT

HOW ABANDONED LAND LOOKS FROM THE AIR

By planting or simply by encroachment,
the woods replace the fields
See pages 2-4, 20-21

VIOLATIONS

Recently a series of sensational disclosures has led many people to believe that the moral and ethical standards in this country are declining. Discounting the evidence produced by fakers, there seems to be a reasonable basis for this belief. And unfortunately, this seems to be particularly true in that field in which, above all others, we have always prided ourselves. This is the field in which morals and ethics are summed up in the word sportsmanship.

Sportsmanship is generally understood to mean that you play the game on the level, according to the rules, and then some. And according to the code, you're aware that unless you play the sport this way it isn't a sport any more, and that you yourself are something less than a sportsman.

From reading the newspapers it's obvious that failure to recognize these principles threatens not only the sportsman but the sport; the mere mention of a couple of major organized sports in this country now produces a sour taste in the mouth. The innocent go down with the guilty. Furthermore, there is a creeping suspicion that other sports, not yet identified, may be affected.

We can add and identify two more. These are hunting and fishing. Every month we publish and send to the papers a list of the people who don't play these games fair and square. And we know better than anybody else that this list is far from complete, and that no conceivable number of Game Protectors could make it complete. Where there's a will to break the law, there's a way.

We know too that there are a lot of silent partners in this law-breaking. These are the people who do a good deal of *talking* about all the violations they've seen, but when it comes to *doing* something about them they just walk off. We sometimes wonder whose side these people think they're on.

And finally there are the people who feel that their hunting and fishing licenses entitle them to do as they please in the field and on the stream. They have no manners, no sense of propriety, no regard for others. In other words, no sportsmanship. These people may do more than any of the others to discredit the sports of hunting and fishing.

These sports being what they are, no scandal such as is possible in organized games will erupt. In a way, that's too bad, because such an eruption might serve to focus attention on the situation and clear the air.

Anyway, the present situation with regard to hunting and fishing deserves the attention of everybody who participates in these sports. As with some other sports, they badly need to be cleaned up, and only those who are participants can really do the job.—Editor.

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NO STAMPS, PLEASE

THE NEW YORK STATE

Conservationist

VOLUME 6, NUMBER 1 — AUGUST-SEPTEMBER, 1951

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Permission is granted to reprint any text from this magazine provided proper credit is given to the New York State Conservation Department and to this magazine.

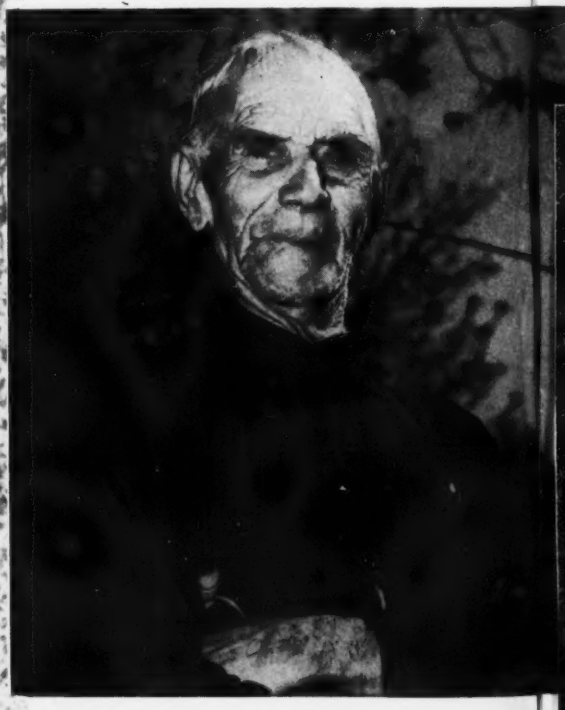
The Conservationist is an official publication of the N. Y. S. Conservation Dept., published every two months at the Department's offices, Arcade Bldg., Albany, N. Y. No advertising accepted. Subscription rate $1.00 per year. Entered as Second Class matter July 24, 1946, at the Post Office at Albany, N. Y., under Act of March 3, 1879. Printed in U. S. A.

The Fate

SPORTSMEN learn to read the narratives of the wilderness: the frayed bark along the deer run, the trampled glade, blood on the snow, the slurred hoof print. These are in the familiar lexicon of the outdoorsman, for this is the literature of the wild.

There is another literature written upon the backwoods places: the lichened stone wall in the middle of nowhere, a scythe blade rusting in a tree crotch, a gaping cellar hole concealed in a brushpile, the faint cart track leading off toward the dim past. These are the trail signs of mankind. They bespeak man's success and disappointment, struggle and achievement—and the same impermanence to which his wild brothers are fated.

The sportsman who finds such signs might put aside his rod or gun, if only for a moment, to reflect upon their significance. Whence came the builder of the aimless stone wall? Where went the owner of the rusty scythe? What fate overtook the digger of the vacant cellar hole? Essentially, why did these men fail, while elsewhere men of lesser daring left a heritage of thrifty farm-



# of Florence, a town

By Bernhard A. Roth, *Soil Conservation Service*

land and thriving descendants?

Soil scientists of the U. S. Department of Agriculture believe they can supply a substantial answer to these questions. As a case in point they are likely to indicate Florence, a remote hamlet in the northwest corner of Oneida County. Fishermen come to the nearby Mad River, to Florence and Spillacy brooks, and to both branches of Fish Creek for fine specimens of native squaretails—the mighty May hatch of black flies and mosquitos is worth tolerating. And in the fall, the Grove Hotel at the Center resounds with heady talk of upland game hunters from Utica, Rome and Syracuse.

It is significant that the sportsmen seem to have taken over. The fact is that remarkably little shows above ground for Florence's 150 years of settlement. Yet in the Nineties, the place buzzed with 1,500 people. Today a scant 500 rattle around in the 30,000 acres. A thin scattering of houses built in another day, a one-room school, two churches, a general store and the aforesaid inn—and there is Florence Center.

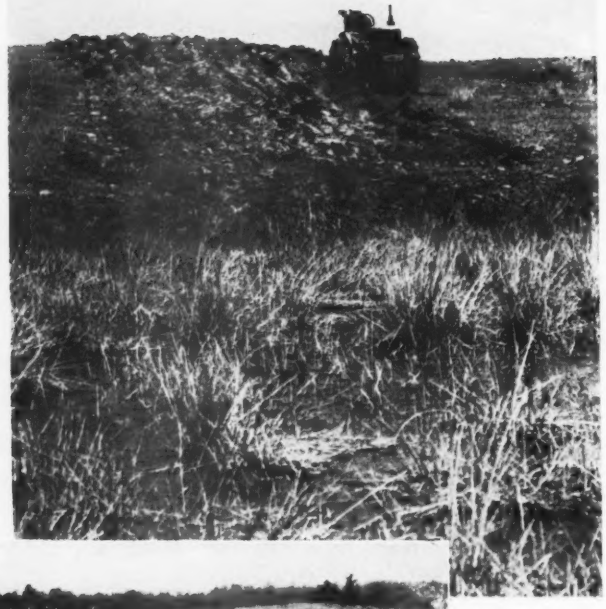
Florence, its rise and decline, has become a subject of study and conjecture for the USDA's Soil Conservation Service, operating out of New Hartford. The Oneida County Soil Conservation District lends technical help to the half dozen "full time" farms which survive from an original 60 or more. Perhaps 15 others are run at random, when owners can spare attention from jobs in urban centers only an hour's drive away.

SCS men call the town an object lesson in land use-capability. Their thesis is that the local soils—with few exceptions—never, never should have been farmed. They have scouted all over the place with augurs and testing kits. Their samples and maps of soil locations prove the fundamental truth in their assessment. So does the ever-encroaching wilderness.

Soils of the area have six or eight different technical classifications, titles of which need not concern the layman. But the characteristics attached to them are frightening, even to one who knows little about agriculture. With monotonous consistency, Florence's earth proves . . . "excessively stony" . . . "very poorly drained" . . . "too high water table" . . . "very acid" . . . "low productivity" . . . "undrained muck, underlain by acid sand" . . . "use limited to pasture and woods" . . .

Aggravating the disadvantage of a poor, nigh unworkable soil, the early settlers began by misusing the land, and the effects are still visible. There was nothing malicious about it, of course; it was merely a folk-way that similarly ruined nearly one-quarter of the Nation's agricultural potential before wisdom prevailed.

Here, they clear-cut the native forests. They stripped off hemlock bark for the early tanneries and let the logs rot where they fell, except for their modest saw-timber requirements. Laboriously, they plowed up the rocky, thin, unwilling land. The land resisted strongly, with cradle knolls, hummocks, wet spots, briars, thornapples and endless moss. The exposed topsoil, bereft of forest litter and native grasses, washed off in layers. Each rainfall and spring runoff uncovered a new bed of stones which contributed to Florence's ever present stone walls, many of them built



8 to 10 feet thick simply to take up the surplus material.

The first several years were promising. The primeval grass was nutritious and in good condition. Cattle did fairly well, according to the standards of the times. The tanneries thrived—until the hemlocks had been wiped out. About 1850, the famed Jesse Williams established the country's first cheese factory at Rome, and Florence became involved in the local limburger and American cheese industry. Eight cheese factories sprang up around the town.

Dairy farms had their heyday during this era. The cheese shops made a steady, handy market and competition between grades of milk was of little concern. But gradually, the high degree of organization in the big city shops squeezed out the village industries. Cattle found thinner and thinner fare on the barren, acid soils. Poor roads and long distances to the liquid milk markets dropped an iron curtain around the local dairy farms. They began to go. Not even a farmer's co-operative in the 20's could save them.

Like any story, that of the late Florence has many explanatory footnotes. The two great wars drained off the young, the dissatisfied, the sunny day farmers, and even today many of those left in the homesteads of their forefathers are residents in name only; they choose to make their living in the cities. With a $90 a week pay base being offered to semi-skilled workers, why break one's back, worry about sick cows and poor soil—for $5 a day?

But basically, the fate of Florence was settled by the soil on which the town was built. This is the soil that is now welcoming back the trees being planted on most of the farms and on the 12,000 acres owned by the State and supervised by the Conservation Department. There are still a few dairy farms which will continue and which pay moderately well, but the pattern of farming in Florence today is for the rugged dairymen reaching out ever farther for more land.

It isn't surprising that much land goes begging, even though it is uncommonly cheap. The main catch is the tax rate ($114 per $1,000)—highest in the State. Yet this itself is only an indication of a more basic fact: that it is the fundamental character of the soil which has reasserted itself and emerged victorious.

As if to share in the victory of primeval forces, the "coy-dogs", distant cousins to the great gray wolves that once roamed the region, have come to make the area their home; last winter, Florence hunters shot five of an estimated pack of 20.

SPORTSMEN'S CLUBS

A more important role in Conservation

SOMETIMES people who are aware that I have met and worked with sportsmen's clubs in almost every section of the State ask me what I think of them. My first answer is that wherever I've met with them, I've found them to be a friendly and hospitable group. If I'm pressed for an answer as to how important I think they are to conservation, I have to say in all honesty that some of them are indispensable; some are largely paper organizations set up in the hopes of getting more hatchery fish or game farm pheasants; and some are largely social organizations which go in for card playing, clambakes and annual banquets.

But I always add that potentially there is no other organized group capable of doing so much for the cause of conservation.

My experience in the Legislature and as a cabinet officer has taught me that in a democracy like ours the help of such an organized group is essential to any program of public service—especially one like conservation. This help is important not only as a means of establishing sound conservation policies through legislation, but to support action programs which will carry out these policies. And in our particular field (where so much of the work has to be carried out locally, on private lands and waters) the active assistance of local organizations takes on an even greater importance.

I have been asked for my views as to how our great army of organized sportsmen can develop and use a larger part of the potential power they have to promote conservation. Instead—and I think it's a better way to get at the subject—I'd like simply to list those qualities which I have observed in the more successful clubs—qualities which I believe account for their success. After all, there can be no set pattern for every club. Some city clubs have thousands of members, expensive club houses and operate like corporations. Others in small villages may have very few members and no facilities, and yet they may do a good job.

But there are certain common characteristics in the more effective organizations which seem essential in any type of club—provided, of course, that conservation is its real purpose.

First and foremost, the successful club or federation manages somehow to secure *and hold* some of the best local leadership. In doing this they must compete with many other good local civic and social organizations. To attract and hold good leadership means that the work has to be interesting and worthwhile.

Second (and this is often the result of good leadership), the top clubs have a real conservation program. More often than not it isn't just a fish and game program; it's a broad program based upon the sensible idea that anything which is good medicine for all our land and water resources is going to benefit wildlife sooner or later. I'll mention program again.

Third, it organizes its members into effective working committees, using available talent to the best advantage, giving everybody some kind of a job. And it recognizes and rewards every accomplishment, no matter how small.

Fourth, it has an effective working arrangement with other conservation and allied groups, such as the Grange and Farm Bureau. It sends the best representation it can find to county federation and State Conservation Council meetings. This is not only a matter of doing its share in county and State work, but also is the only effective way to make sure that progressive conservation ideas prevail. Today it is impossible to find a single top club that thinks for a moment that it can "go it alone."

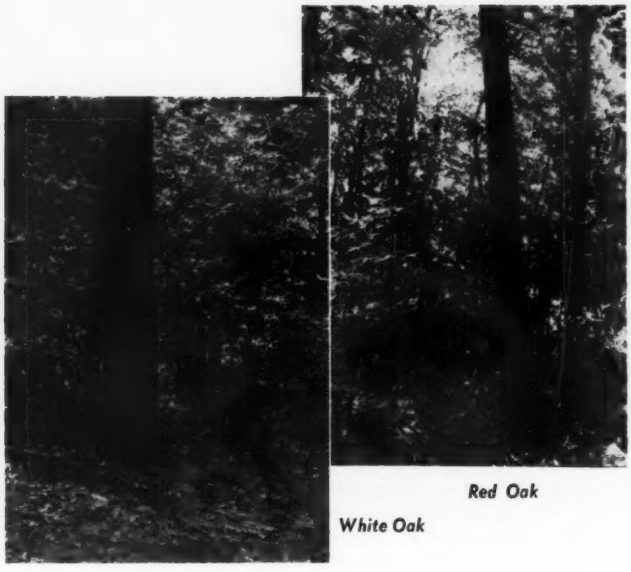
Fifth, it properly assumes that the Conservation Department is *its* department—operated to provide every reasonable conservation service—and makes full use of Department men, facilities and services. Recognizing its right to make constructive criticisms, at the same time it also recognizes that the Department must serve the entire State and cannot possibly act upon every local need or wish. The progressive club of today doesn't indulge in the old-time practice of "baiting" the Department. That may have been an amusing pastime, but it doesn't get a job done.

THESE five items are by no means a complete list of all the things that make a club a success. But I believe they are the essentials. And among them, judging by my talks with sportsmen, it seems that building a good conservation program is the most difficult. Believing that the Department can help out with suggestions on that score, I have asked our staff to prepare a special manual for clubs containing a number of useful articles reprinted from THE CONSERVATIONIST, as well as new material. "What To Do and How To Do It" will be the theme, and the manual will be available shortly.

Finally, I wish that more of our fish and game clubs were called Conservation clubs. I'm sure that's what they mean to be, and if so, that's something the public should know. In any case, I'm glad to acknowledge that many of our conservation advances are the result of the work and thought of our sportsmen. I'm convinced, however, that if more clubs follow the fine examples already before us, that our hundreds of thousands of organized sportsmen can play an even more important role in conservation than they have in the past.

—PERRY B. DURYEA, *Commissioner*

Shown in fall color on our cover are (top) the pointed leaves of the red oak; at bottom right, the rounded leaves of the white oak; and in the center, the scarlet oak



Red Oak

White Oak

OAKS

THE oaks are a sturdy race, and, considered globally, are the most important of all the broad-leaved trees. Hardy, long-lived and massive in contour, the oak from time immemorial has symbolized enduring strength and dependability, and was frequently an object of veneration among primitive peoples.

In modern times, oak has provided the floors on which we walk, the framework of the ships we sail in, the ties over which our trains run, the desk at which we work, tannin for shoe leather, staves for whiskey barrels, corks for bottles, food for deer and hogs, and many other uses. White oak posts are durable in the ground, and oak plank is used on bridges, platforms or other places where there is expected to be a maximum of wear and tear.

There may be as many as 300 different kinds of oak. Nobody really knows, because the individual species are extremely variable and have a tendency to cross with one another to produce hybrids (and also confusion among the botanists). It's no disgrace, even for an expert, to say "I dunno" when somebody brings in an oak leaf or a handful of acorns for identification. The only sure dividing line is between the "white oaks" and the "red-or-black oaks." Barring certain exceptions, *white oaks* have light-colored bark, rounded leaf tips and sweet acorns which mature at the end of the first season. *Black oaks* have dark-colored bark, pointed leaves, and bitter acorns which take two years to mature. A "white" oak will cross with another species of the white-oak group, but not with a red or black, and vice versa.

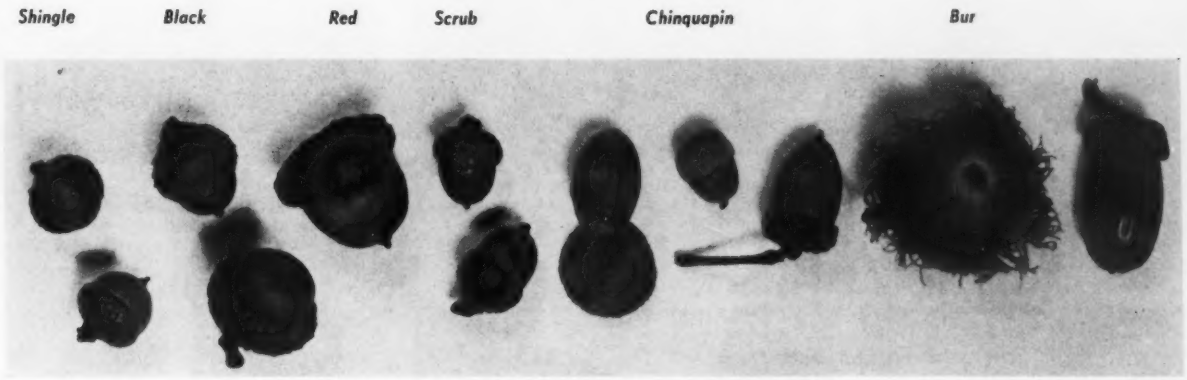
The differences between the two major groups of oak are basic, and go back, no doubt, to the origin of the species; a superficial distinction, due mostly to climate, is made between the familiar northern oaks, which cast their leaves in the fall or winter, and the "live oaks" of warm-weather regions, which are evergreen.

Of the 59 arborescent oaks (those that grow to tree size) in the United States, 13 are native to New York. The main concentration of these trees is in the Hudson Valley, where nearly all the species are represented, some of them in great abundance. This is the only part of the State where white oak grows large enough and in sufficient quantity to support a ship-timber industry. The inferior chestnut oak, also called "rock oak" and "yellow oak," covers large areas here, especially on dry knobs and ridges that have been cut-over and burned-over till nothing else will exist there. Along with these are the northern red oak, and the closely related black oak; the scarlet oak, gorgeous in its fall coloring; the scrub oak (bear oak), especially on the Shawungunks; and in moist places, the towering swamp white oak, and the pin oak, which latter doesn't appear again to any extent until we reach Grand Island in the Niagara River.

Then there is a group that might be called the "Long Island oaks" because they occur there and on Staten Island, but hardly at all on the New York mainland. These are of interest mainly to the naturalist, and include such oddities as the post oak, black jack oak, willow oak and the southern red oak, which has been reported only from one location near West Hempstead. The more common oaks grow on Long Island too, and thousands of acres in the east central portion are covered with scrubby stands in which the bear oak is predominant. At the present time, many of these areas are being converted to potato fields with the use of power machinery.

MOST picturesque oak of our New York species is the bur oak. This is a tree that needs elbow room, and is found typically in open groves or standing by itself in the middle of some fertile plain, where it develops a huge trunk with a spreading crown that becomes a prominent feature of the landscape. You can see such trees to best advantage in the Champlain and the St. Lawrence valleys, and in the "Genesee Country" west of the Finger Lakes. Bur oak has some distinctive botanical characteristics such as corky twigs, extra-large acorns half enclosed in a hairy cup, and leaves which have deep "sinuses," or indentations, that nearly cut the leaf in two near the middle.

ACORNS FROM NATIVE NEW YORK OAKS



White oak, which makes the best timber, is found not only in the Hudson Valley but up through the Mohawk to the Lake Plains; on the outer fringes of the Adirondacks; and along the valleys of the Susquehanna, Chemung and other rivers that drain the Southern Tier counties. Loggers are paying fancy prices for it today—one sale of stumpage was reported not long ago at $50 per thousand, Doyle scale, in the Rochester area; and $20 to $25 is not uncommon.

RED oak is also a good timber species, more important to forestry in New York than the white, because it grows faster, farther north, higher up the hills and on poorer soils. It responds especially well to forest management and sometimes reaches a remarkable size. About ten years ago a red oak was observed on the Alfred Johnston farm near Collins, in Erie County, that measured 13 feet in circumference four and a half feet from the ground and was 110 feet tall. The tree appeared perfectly sound and rose up through the surrounding second growth forest in a clean straight column, 50 feet to the first branch. This is not the biggest red oak ever recorded in New York, but, all factors considered, is unquestionably the finest. How a tree of this quality managed to escape the logger's axe for a century or more is something of a miracle.

Earlier we mentioned the pin oak. This is valuable chiefly as a shade or ornamental tree for heavy soils. It has a peculiarly formal appearance, with a straight, undivided stem and branches (at least, the lower ones) that grow straight out, almost horizontally from the trunk. The "pins" are short, stubby branchlets that serve well for identification. It is a fast grower, as oaks go, and has fibrous roots (no tap root) which make it easier to transplant.

Considering the wealth of native oaks in New York there would seem to be little cause for importing foreign varieties, but it was attempted once, and thereby hangs a bit of Adirondack history. About 1880 one Wilhelm Pickardt, a native of Prussia, acquired a tract of land, (now part of the Forest Preserve) on the east side of Schroon Lake just north of the settlement of Adirondack. According to Grover C. Smith, (father of Morgan Smith, our Forester at Lake George) whose forbears were among the first settlers in Adirondack, and who was himself a Forest Ranger with the Conservation Department for 24 years, Pickardt intended to reproduce here in the American wilderness an Old World baronial estate, and to that end imported some wild boars from Europe for hunting purposes. To provide feed for the boars he brought in a quantity of acorns of the European oak (or as they were called, "German oak"), and planted them there on an old burn. This operation was further reported in the First Annual Report of the New York Forest Commission for the year 1885 by a surveyor who stated that "the year after planting, the young oaks were up two or three inches." In the meantime the boars, (so the story goes), failed to survive the rigors of the Adirondack winter, or perhaps its predators (there were plenty of panther then—not to mention the poachers). But the oaks lived on, and though they never made anything but scrub trees, did produce crops of long-bodied, nutritious acorns that have made this area a favorite feeding ground for deer and other wildlife for a generation.

HERR Pickardt became an intimate friend of Tom Wells, of Wells House fame and of John O'Connell, who later became the proprietor of the Rising House in nearby Chestertown. At some time or other he gave to them (and possibly to others) seedlings of the "German Oak." One of these is growing in back of the Wells House at Pottersville and others may be found on the site of the old O'Connell place on Hoffman Road west of the Village of Schroon Lake. On this latter site as well as in the origial plantings at Adirondack, seedlings are coming up naturally, so that the "German Oak" may now be considered as part of the native flora of the Schroon lake region, and we have included its acorn in the picture.

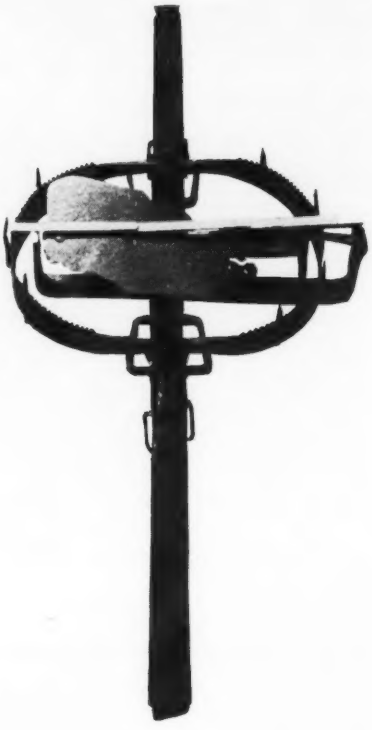
—E. W. LITTLEFIELD,
Supt., Forest Management

S. Newhouse

TRAPS

Part I: Evolution and history

Next Issue: The search for a more humane trap



Man Trap: Illegal in N. Y.! Has 17¾ inch spread, 58 inches long. Discovered in the famous sporting forest of Wychwood near Burford (Axon), England, a haunt for highwaymen more than a century ago. Reputed to have captured the notorious deer-stealer Belter Harding of Burford who lived on hazel nuts for three weeks with the trap on his leg. Man traps first used about middle of 18th Century as a measure to prevent poaching. Usual punishment for deer and sheep stealing: 7 years deportment.

Oneida Community-Newhouse Trap Works at Sherrill, Circa, 1860

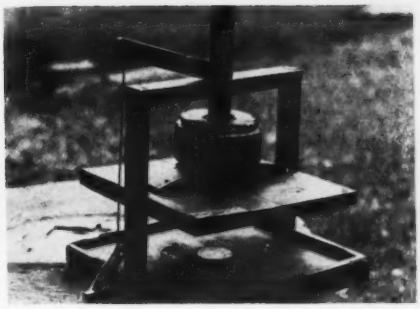
REGARDLESS of personal sentiment for or against the trapping of wild animals, there are certain facts relating to traps and trapping which are of significance to everyone:

(1) The trap was a vital tool in the march of civilization from the Atlantic seaboard to the Pacific. Going before the axe and the plow, the trap—even more than the rifle—forced the beaver and the bear to give way to the wheat field, the library and the piano. (2) This State and many others, including Wisconsin, Minnesota, Oregon, Kansas and Colorado, might well adopt the steel trap in their coats of arms; in any case, they owe that much of their settlement and development to the trap. (3) New York State is still the second largest fur producer in the nation; its women are the largest (in money value) fur coat buyers; and New York City is the center of the world fur trade as well as of fur importation. (4) The trap entirely changed the standard of living of many Indian nations, as well as of white men. (5) The steel trap is still essential for the harvesting of a wildlife crop and for the control of animals that threaten the interests and health of humans—animals ranging from orchard-killing mice to rabies-infected foxes and deer-killing coyote hybrids.

A sixth fact is that large scale commercial manufacture of steel traps in this country began at Kenwood, N. Y. in 1855. This places the origin of the modern trap business right here in New York State—which is logical, considering the past and present position of the State with regard to the Fur Industry.

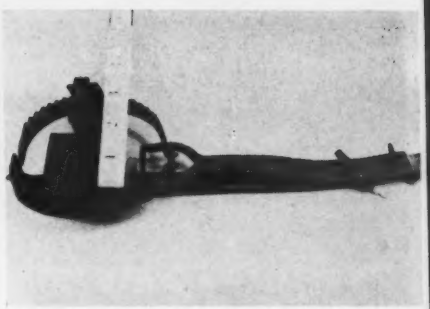
Father of this trap business was Sewell Newhouse. As a 17-year-old lad he began making traps at Oneida Castle, following the 1768 English trap design. Each year he made a new set of 50 tempered traps out of old axe heads, scythes, files, rasps and bolts. These he used himself, then sold to the Oneida Indians for 62 cents apiece. (He became a famous trapper and gunsmith in his own right, and readily spoke the Oneida language.) The Oneidas took their highly prized Newhouse traps with them when they moved to Green Bay, Wisconsin on July 4, 1833 after selling their lands in New York State. And from Green Bay, the fame of the Newhouse trap spread westward.

Prior to 1848, Newhouse and his assistant blacksmith John Eddy were making 1,000 to 2,000 traps a year, all



Household Deadfall: Rat trap used in very early Colonial days; handmade. Bait in middle pulled by rat released trigger on the side and weighted platform fell on the rat.

Live Box Trap: Legal in N. Y. provided it takes only one animal at a time. Animal chews bait in box, releases trigger in back. Lid falls. Used in Colonial times for rabbit.



Early English: Illegal in N. Y.; due to saw-like teeth; 3 inch spread. Hand forged prior to 1800; early traps snapped in two in the winter; used for muskrat, mink, weasel.

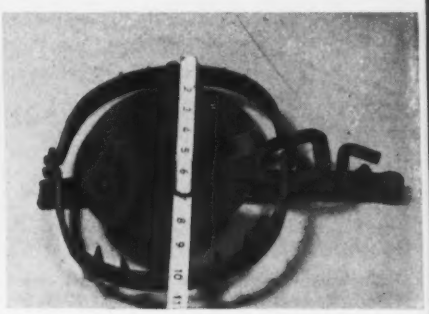
Early English: Illegal in N. Y.; 7 inch spread. Pan missing. Maker unknown. Dates around 1790 or 1800. Probably designed for beaver, mink, fox, skunk, opossum, otter.

Triple Spring Bear Trap: Illegal in N. Y.; handmade by John Wickham in 1843; owned by Clyde Bloodgood. 20 inch spread, weighs 45 lbs. with outer spring 15 inches long.

Double Spring Bear: Illegal in N. Y.; toothed, handmade by Joe Fisher Howe. Weight about 40 lbs. minus chain. Designed for black bear. Used in Vermont wilds about 1865.

Newhouse #5 Small Black Bear Trap: Illegal in N. Y. Spread 11¾ inches, jaws have teeth. Weight 17 lbs.; springs weigh 2 lbs. 10 oz. each. Newhouse setting clamp attached.

Adirondack Bear Trap: Hand forged small black bear trap; illegal now in N. Y.; 9 inch jaw spread with teeth. Owned by John A. Baker, Stony Creek, N. Y. Forged 1860.



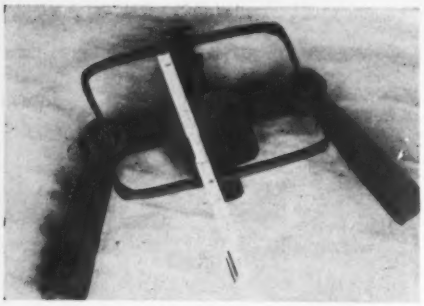
A. F. Stoeger, N. Y.: Illegal in N. Y.; has jaw spread of 10 inches, toothed and has extra large pan; probably designed for wolf, mountain lion, wildcat, lynx, coyote.

hand forged. But in 1848 the Newhouses joined the Oneida Community, an experiment in communal living at Kenwood, and shortly thereafter the steel trap business—financed by the Community and supervised by Newhouse—really got under way. The Newhouse trap was put on a mass production basis. Later a factory was built at Sherrill, and between 1864 and 1872 production of traps by the Community ran over the three-quarter million mark.

Not many people realize that the steel trap for many years financially supported one of the most famous social experiments in our country's history.

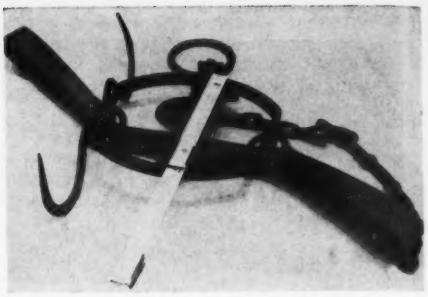
The Newhouse trap provided trappers with a standard pattern in sizes, a product of precision work, light in weight, durable and reliable. Every trap a perfect trap—that was the Newhouse watchword.

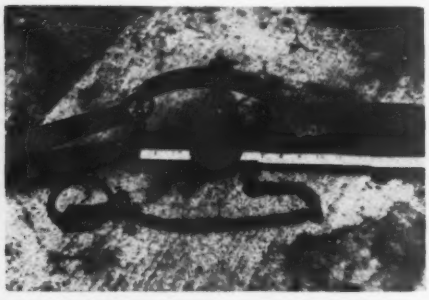
The only time the Oneida Community's trap business was in jeopardy was when the Blake, Lamb & Company's "Jump" trap came out in 1865. This was the first major departure from the English design and did away with the long single and double springs of Newhouse traps. It was short, compact, and light, with springs under the pan enabling the trap, when sprung, to jump about an inch off the ground to grasp the animal's leg higher up. Its lighter weight was also a boon to trappers, since it meant they could carry



Wolf Trap: Illegal in N. Y.; 8½ inch jaw spread with long double springs. Maker is unknown, but probably handmade. Used for wolf, coyote, lynx, and wildcat.

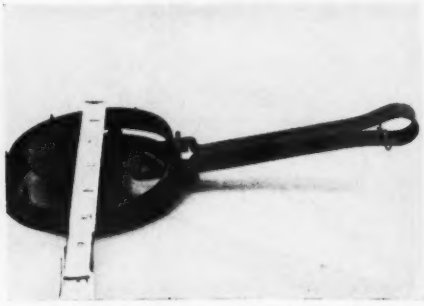
Newhouse #4 Clutch: Illegal in N. Y.; 6½ inch spread; clutch is detachable; same size as Newhouse's #4. Trap was set with clutch end farthest from shore. Beaver swims with fore legs folded against his breast. When breast touches ground, feet are put down. Position of trap can be set so that the beaver will put fore feet in the trap. Clutch holds the beaver by the body and drowns the animal.





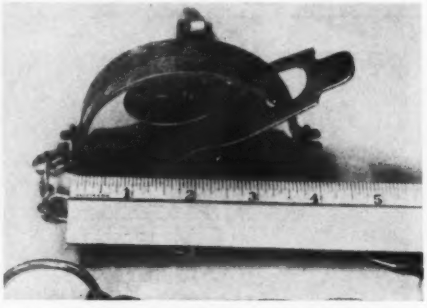
High Grip #415X, Beaver: Illegal in N. Y.; 10 inch spread; copied from Newhouse's #4 beaver by Triumph Trap Co. Used for beaver, fisher, fox, wildcat.

Newhouse #31½: Illegal in N. Y.; 6½ inch spread. Largest single spring Newhouse trap; used for coyote, beaver, wolf; same strength as double spring #4.

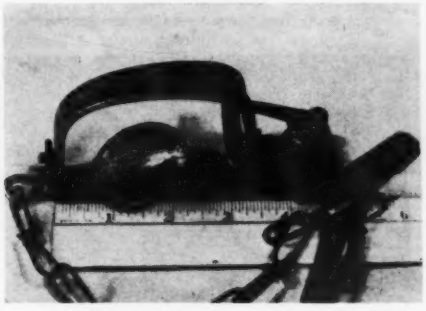


Bollingx Vondercrone: Illegal in N. Y.; toothed, long spring trap with large pan; dog welded on pan and jaws to act as trigger; unknown date; used for beaver, fox.

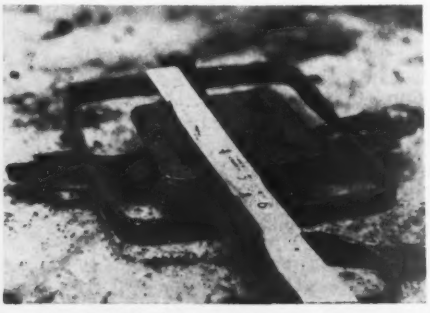
Oneida Jump #3: Illegal in N. Y.; 6¼ inch spread. Adapted by Newhouse from Blake & Lamb Jump but only has one underpan spring. Used for fox, beaver, otter, wildcat, coyote.



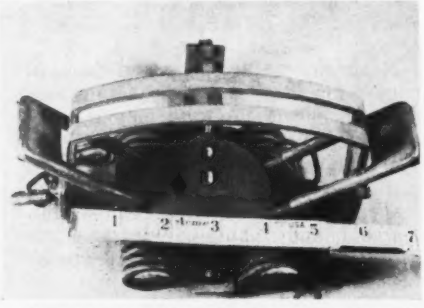
Blake & Lamb #1: Legal in N. Y.; 4⅜ inch jaw spread; used for barn rats, gophers, weasels and muskrats. A dozen weigh about 7 pounds. Very light to carry in a pack.



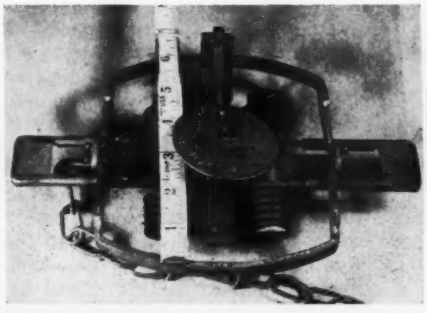
Easy Set Coil Spring: Legal in N. Y.; 4 inch spread; single coil spring; a product of Triumph Trap Co. Used for mink, weasel, muskrat, opossum and skunk.

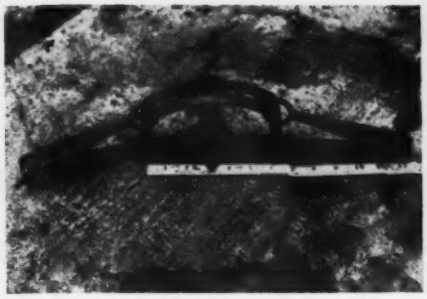


Blake & Lamb #2 Water Set: Legal in N. Y.; 6 inch spread; prongs on pan hold sod in running water to hide pan; used for weasel, mink, fisher, raccoon, muskrat and fox.



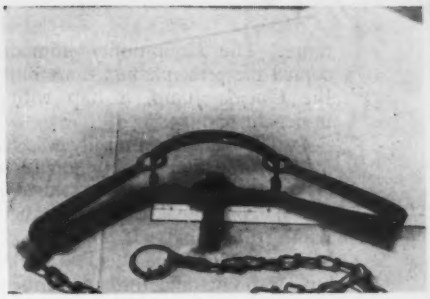
Diamond Brand #34: Illegal in N. Y.; 6½ inch spread; ½ inch offset in jaws give a higher grip on animal's leg as animal's weight is put on it. Made by Norwich Wire Works, Inc. but trap business was sold to the Animal Trap Company of America, Lititz, Pa. on March 30, 1931. Lester A. Beardsley was original patentee of the Diamond Brand. Used to trap beaver, fox, fisher, wildcat and the lynx.



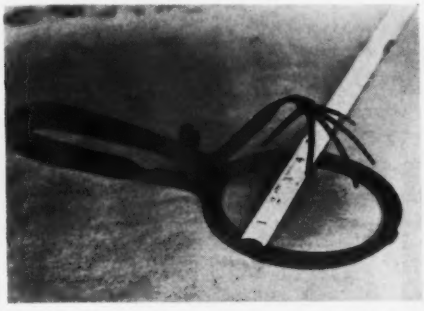


Newhouse #4, Deer: Illegal in N. Y.; has teeth, 6¼ inch spread with jaws offset ½ inch; designed not to break deer's feet. Trap was not staked; deer trailed and shot.

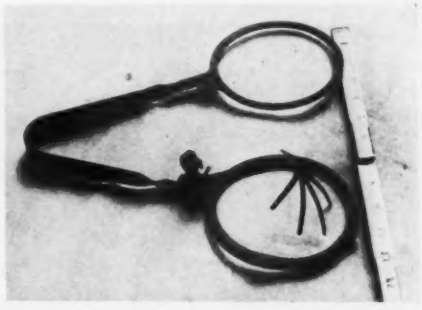
High Grip #315X, Deer: Illegal in N. Y. 8 inch spread; copied from Newhouse's #4 deer by Triumph Trap Co., patented Aug. 26, 1917; has offset of ½ inch in jaws; deer.

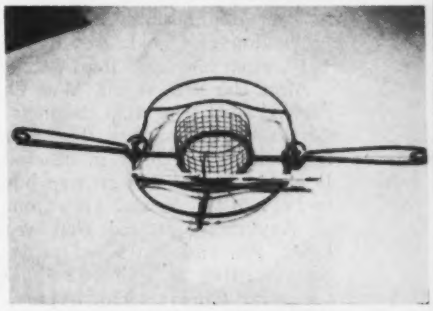


Sargent's #4: Illegal in N. Y.; has 6¼ inch spread. Resembles and copied from Newhouse's #4 wolf-beaver trap. Used for wolf, coyote, beaver, wildcat, lynx and other animals.

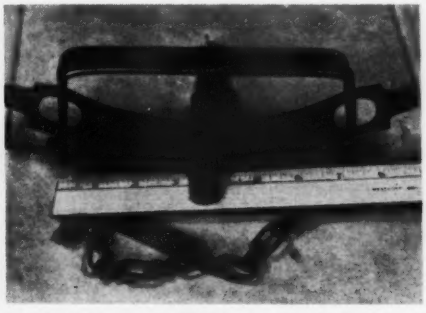


Choke Trap: Unusual type trap. Legal in N. Y. with 5 inch spread. Maker is unknown. Was set across the den entrance. The animal pushed its head against the claw-like trigger which released the loops, catching the animal by the throat. The animal choked to death. The width of the loops kept the animal from pulling the trap into the hole. Used for skunk, mink, muskrat, opossum, gopher and the rabbit.

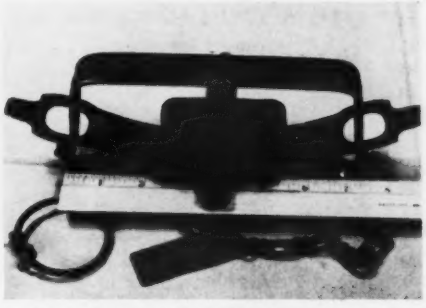




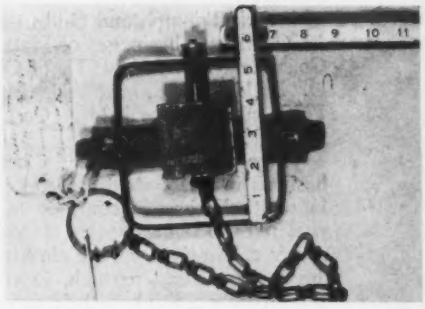
Underwater Wire Pan Set: 25 inch spread; bait, dead or alive, placed in wire box under pan. Body holding type; used for raccoon, beaver, fisher and otter. Legal.

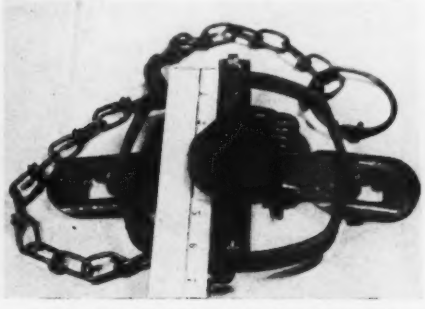


Blake & Lamb #40: Legal in N. Y.; 6 inch spread; 1st important departure from English design. Narrow pan accommodates sprawling foot of beaver. Eliminates toe catches.

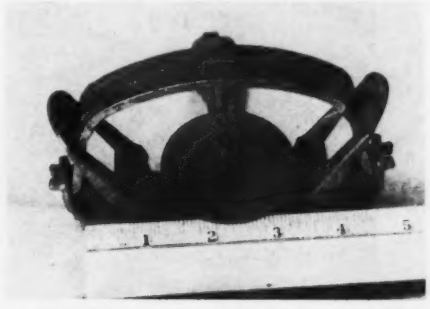


Blake & Lamb #4: Legal in N. Y.; 6 inch spread. Springs set under the pan. Used for beaver, wolf. Patented by Dr. Amos Shephard Blake, Waterbury, Conn. Blake, William Lamb and Henry C. Chambers organized Blake, Lamb & Co. in 1865, incorporated in 1867. Hawkins Company bought Blake & Lamb in 1898 from R. S. Wotkyns, J. P. Elton, G. B. Lamb, and others, moved machinery to South Britain, Conn.

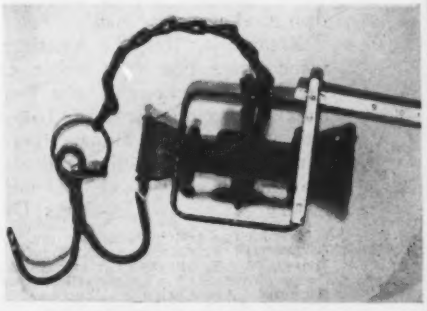




Single Grip #4: Legal in N. Y.; 6 inch spread; a W. A. Gibbs product now called Victor Coil Spring by Animal Trap Company of America, the present owners. Fox, beaver.



Coil Spring #2: Legal in N. Y.; 4½ inch spread, double coil spring. "Never Shake" on pan. W. A. Gibbs the maker; sold 1936 to Animal Trap Company of America; mink, fox.



Easy Set Square Grip # 3: Legal in N. Y.; 6 inch spread. Was made by Triumph Trap Co., Oneida, N. Y. Used for beaver, fox, raccoon, coyote, wildcat. Triumph out of business.

more. The Community immediately copied the principle and came out with the *Oneida Jump*, a trap with one under-the-pan spring.

In 1880 the Community was forced by pressure of public opinion to break up and re-organize minus the controversial communal aspects under the name of Oneida Community, Ltd. Newhouse died on December 28, 1888, but trap manufacture continued to flourish, with four styles in production: the *Newhouse* (1855), the *Oneida Jump* (1868), the *Hawley & Norton* (1874), and the Victor (1886). A Canadian factory was built in 1896, and Oneida expanded into the mouse and rat trap business in 1906. Peak production of Oneida was reached in 1910, when 6,812,000 traps were made.

After the first World War Oneida decided that the trap business had served its purpose well, but that the future looked brighter in other fields. It sold its mouse and rat trap business in 1924 to the Animal Trap Company of America, organized that year at Lititz, Pa., and in 1925 Oneida sold out its entire trap line to the same company. Oneida today is known as Oneida, Ltd., makers of fine silver.

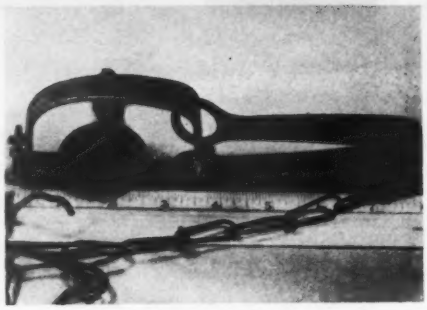
After Oneida's exit, the Animal Trap Company of America quietly started to buy up trap makers. It bought out Lester A. Beardsley's Diamond Brand March 30, 1941; W. A. Gibbs & Son with their Triumph and Gibbs traps in 1936; the trap businesses of Pratt Mfg. Co., Joliet, Illinois in 1937, of Charles D. Birddell, Inc., Crisfield, Md. in 1939, and of Lovell Mfg. Co., Erie, Pa. in 1947.

There is still, of course, a bustling business in traps. And the end is not in sight. Furbearers continue to play vital roles in many aspects of contemporary civilization—in the clothing industry, in medical research, in vermin and predator control, in their own right as valued and respected citizens of the wild. And whether we like it or not, until we find something better, the trap remains the surest and most economical means of controlling our dynamic furbearer populations—for their own good as well as man's.

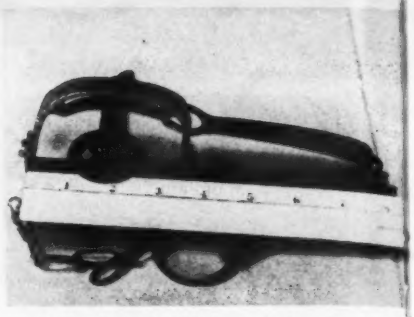
Recognizing this, the American Humane Association (which has one of the best collections in the country) does not oppose the trap. Instead, it seeks a better, more humane trap. Certainly a worthy objective, and we shall have more to say about it in our next issue.

—NICK DRAHOS

Thanks for article help are due Stephen R. Leonard, Sr., Kenwood, N. Y.; Dr. L. C. Jones, N. Y. State Historical Society, Cooperstown, N. Y.; Lester Giles, American Humane Association, Albany, N. Y.; Whalen Smith, Personnel Dept., Oneida, Ltd., Sherrill, N. Y.; D. S. Morrison, Animal Trap Company of America, Lititz, Pa.

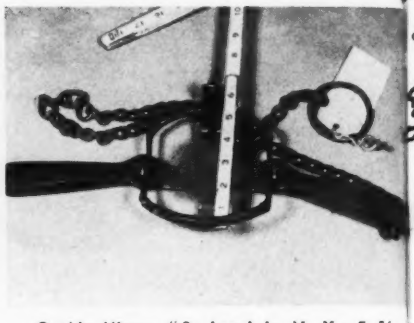


Triumph's Muskrat #1: Legal in N. Y.; 4 inch spread; long spring type; common trap type even today; used for muskrat, mink, weasel, rat, opossum, marten and the skunk.

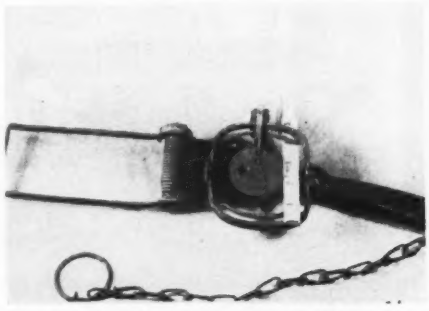


Diamond Brand #2 Long Spring: Legal in N. Y.; 4 inch spread and double jaws. Pat'd May 18, 1926 by Norwich Wire Works, Inc. Used for muskrat, weasel and skunk.

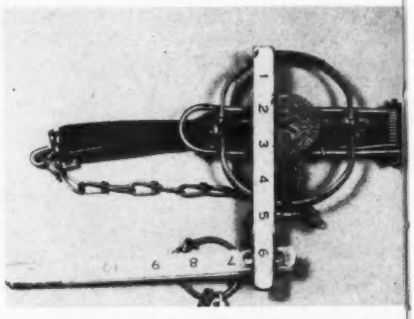
Triple Clutch #2XT: Legal in N. Y.; 5 inch spread; T-shaped, slotted inner jaw helped hold leg of animal. Was made by Triumph Trap Co.; used for fox, mink, beaver, lynx.



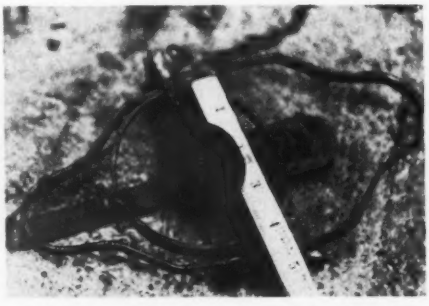
Oneida Victor #3: Legal in N. Y.; 5 5/8 inch spread; pat'd Sept. 26, 1911; jaws offset 3/16 inch; designed for Fish & Wildlife Service for coyote control in West.



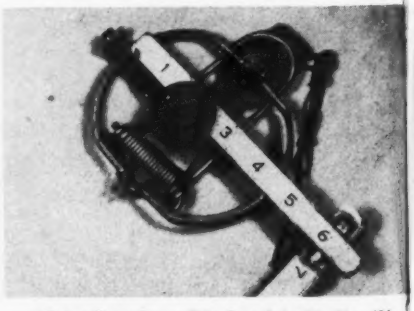
#2½ Long Spring Frame Jaw: Legal in N. Y.; 5 inch double leg gripping jaws with long rectangular jaw to break animal's back. Used for beaver, skunk, raccoon, fox, muskrat.



Oneida Victor Stop Loss #33: Legal in N. Y.; 4½" spread; long spring under jaws slides up against body, prevents animal from chewing legs; used for muskrat, mink, weasel.



Two Trigger #1: Legal in N. Y.; 4 inch spread, killer type. Small jaws held feet; large jaws crushed skull or back. A Gibbs trap, Chester, Pa. Used for muskrat, mink.

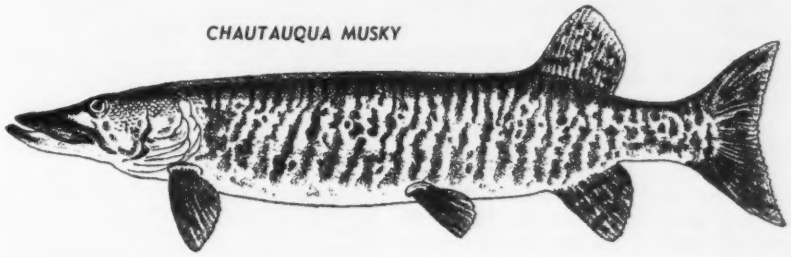


Victor Stop Loss #1: Legal in N. Y.; 4½ inch spread. Outfitted with "Jump" spring. Used in tight spaces for the common rat, weasel, gophers, muskrat, mink and skunk.

ST. LAWRENCE MUSKY

Our Muskalonge Fishery

CHAUTAUQUA MUSKY



SEASON: July 1-Dec. 1 (Cattaraugus and Chautauqua counties, July 1-Oct. 15).

MINIMUM LENGTH: 24" (in Cattaraugus and Chautauqua counties, 30").

DAILY LIMIT: None (except in Cattaraugus and Chautauqua counties, 1).

SEASON LIMIT: In Cattaraugus and Chautauqua counties, 5.

POSSESSION: From close of season to March 1st following.

METHOD: In Cattaraugus and Chautauqua counties other than in Lake Erie muskies shall not be taken by the aid of a metal line or line having metal leaders exceeding six feet in length, nor shall a gaff, hook or other instrument or device other than a landing net be used to land such fish hooked by angling.

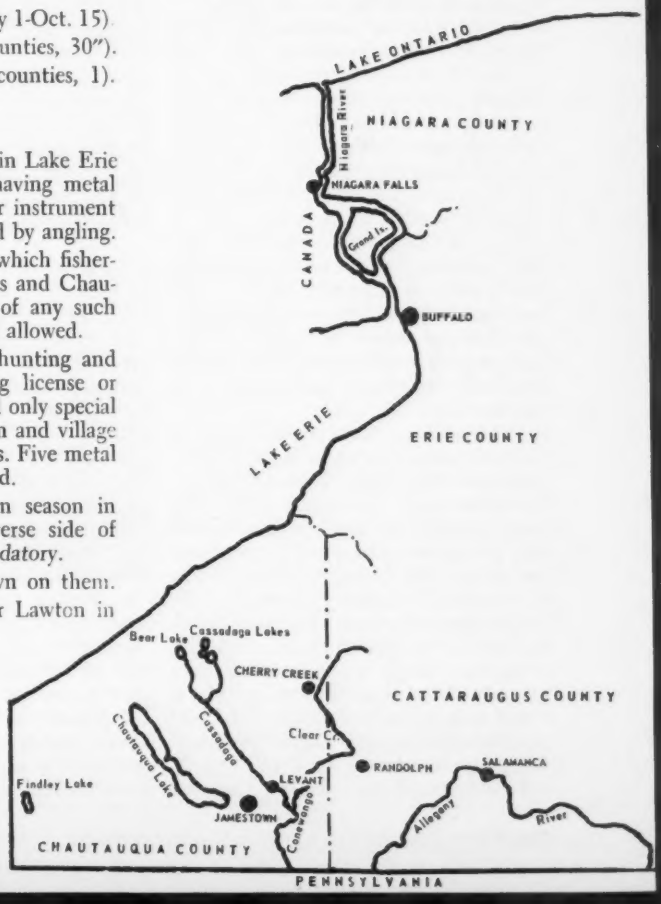
RESTRICTIONS: The owner, lessee or operator of a boat from which fishermen shall have taken three muskies from the waters of Cattaraugus and Chautauqua counties other than Lake Erie shall not permit the use of any such boat in fishing for muskies again during such day. No ice fishing allowed.

LICENSES: Elsewhere in State, fishing license or combination hunting and fishing license; in Cattaraugus and Chautauqua counties, fishing license or combination plus *special* muskalonge license. Minors under 16 need only special license. Special license issued by protectors and county, city, town and village clerks of counties of Cattaraugus, Chautauqua and Erie for 25 cents. Five metal seals issued with each license; muskies of legal size must be tagged.

LICENSE REPORT: Within five days following close of open season in Cattaraugus and Chautauqua counties, licensee must fill in reverse side of special license and mail to the Department in Albany. This is *mandatory*.

WHERE TO FISH: See maps; only muskalonge waters are shown on them.

RECORDS: St. Lawrence musky, 58 lbs. 5 oz., taken by Arthur Lawton in 1944 at Cape Vincent, St. Lawrence River. Chautauqua musky, 42 lbs., taken by Allen A. Thayer at Chautauqua Lake.



fauna

gray squirrel

A BRITISH Revolutionary War general once remarked that it required a hundred weight of British musket balls to kill an American soldier, while almost every American musket ball, fired with telling accuracy, accounted for one of the general's British redcoats. The general was only one of many who commented upon the marksmanship of our forbears.

Tradition has it that this proficiency with a rifle was acquired in firing at one of the most difficult of all our wild targets, the gray squirrel. The Squirrel Rifle, the Squirrel Hunters' regiment of Civil War fame, and many other squirrel hunting yarns and legends are part and parcel of this tradition. In any case, it is certain that throughout the Northeast there was an abundance of gray squirrels to test and perfect the marksmanship of our ancestors. And there still is; many a young hunter, out for the first time with his .22 rifle, "cuts his teeth" on a small gray target high up in an oak tree.

Although the reduction of the forests has decimated the gray squirrel hordes of the past, the species is still abundant enough to be the favored game animal of many New York hunters. Furthermore, where he is protected throughout the year, the gray squirrel becomes tame enough to take food from the hand, and so has become a welcome resident in many of our city parks.

But despite its common occurrence, relatively little is known of the details of the life history of the gray squirrel. Mature adults of the species breed twice each year. During late December, January, and early February wild and noisy mating chases through the tree tops and on the ground announce the start of the breeding season. One female may be pursued by as many as nine males, and may mate with several during the period of "heat." So interested in the chase are the males that the curious onlooker is either not noticed or ignored. Males fight viciously with each other to gain and hold a preferred position close to the female.

After mating, some 45 days pass before the young are born, usually during March in New York. Both den cavities in hollow trees and exposed twig and leaf nests are used as nurseries. At birth the young weigh about 13 grams and are naked, blind, and helpless. When five weeks old their eyes open, and the bodies are fully furred in typical adult fashion. (See photo above.) At this stage they weigh about one-sixth of a pound. From this time on growth is rapid and at seven to eight weeks of age the young squirrels make excursions away from the den tree under the watchful guidance of the female. They are gradually weaned from a milk diet to one of buds, seeds, berries, tubers and the like.

Juvenile gray squirrels unescorted by the female can be seen during late May and June. By mid-June they weigh between two-thirds and three-quarters of a pound, and although they may still return to the original nest or den cavity, are fully able to take care of themselves. With the abundance of green mast—acorns, hickory nuts, walnuts, and beechnuts—during August and September, these spring-born young become fat and sleek. They reach the adult weight of about a pound and a half by the opening of the hunting season in late October. The large, darkened scrotal sac of the adult males, inconspicuous in the young males, and the prominent nipples of the females that have borne young previously serve to distinguish young from mature animals at this time.

If the female is an old one, two years old or older, she usually mates again during June or July, leaving her first nest of the year to the half-grown young of the spring litter, and bears a second litter during August or September. These young do not leave the nest until the end of October or early November. Few of this second brood enter the annual crop of squirrels shot during the fall hunting season, and therefore this summer brood adds materially to the breeding population of the coming season where hunting has removed most of the old adults.

Females born in the spring usually mate the following January or February and bear but one litter their first year. Summer-born females mate at an age of about 11 months and bear young during the summer following their birth. Some of the young females may not mate until they are 14 to 16 months of age. During the second year following their birth most older females bear

both spring and summer litters.

The number of young born in a litter varies from one to six, three or four being the average number for older females. Young females bearing their first litter have fewer young. The biologist determines the number of young born in several ways. The most direct method, of course, is to investigate the nest and count the young, but examination of the reproductive organs of females provides most of the information on this subject.

PHOTO at top, taken from an old female in early March, shows the forked uterus or womb with five swellings, each of which contains a young squirrel at a stage of development reached during the week before birth would have taken place. One of the young has been removed, together with its placenta or afterbirth, which provides nourishment through the parent during fetal life.

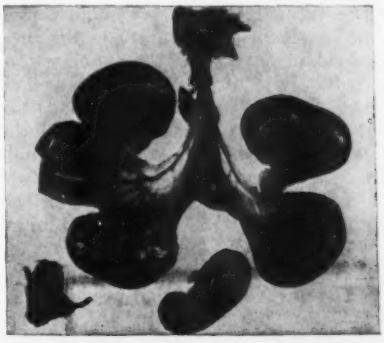
The center photograph shows a uterus with three large swellings at the side, from one of which the newborn young illustrated was born one day before.

In lower photo is the reproductive tract of a female as it would appear some six to eight weeks following the birth of young. Two small scars are evident in one side and one in the other. This is the condition that a hunter would find in November if he examined the uterus of a female that had borne a litter during August or September.

Unlike the female, the adult male gray squirrel is capable of breeding at all seasons of the year except during the period from late August to early October. At this season the testes are retracted into the body cavity and shrink in size—which may provide one explanation why some hunters believe such animals have been castrated by red squirrels. The writer has examined over a hundred adult male gray squirrels from areas where both gray and red squirrels abound, and has yet to find a male gray squirrel without both testes present in either the scrotum or the body cavity. (Any observations by others on this subject would be appreciated by the writer.) Young male gray squirrels mature at 10 to 14 months, approximately the same time as their female litter-mates.

In a study of the home range and movements of gray squirrels at Ithaca, the writer transferred 70 marked squirrels distances over a mile from their home woodlot. Over half the adult males returned to the woodlot where originally captured, usually within three to five days, even though they had to brave streams, open fields, and highways enroute. Adult females displayed an equal ability to come home to familiar territory. However, only one-fifth of the squirrels less than a year old returned to the home woodlot. Most of these remained near the point of release. From these observations it appears that when it is desired to establish or reintroduce squirrels to suitable habitat depleted by disease or by too intensive hunting, young animals should be stocked, as they appear to adapt themselves readily to a favorable new home.

Many spring-born young squirrels leave the home woodlot during August and September to seek their fortunes



elsewhere. This is probably in response to the increased population of the home woodlot, now crowded with old adults, spring young, and a new crop of summer young not yet out of the nest. We know this migration is not conditioned by food scarcity, for this is the season of great mast abundance. As the animals move they construct many leaf nests for temporary shelter before they reach their new home. Once established in favorable territory, it is doubtful whether the individual squirrels range more than a mile during the course of a year.

Males are known to have a greater home range than either females or juveniles. During the mating season they travel further in search of rutting females than they do in search of food, water or shelter the balance of the year. By comparison with the cottontail, an animal of comparable size that may spend its entire life on a tract of only several acres, the individual gray squirrel may have a relatively large home range.

The gray squirrel is an energetic tree planter, through his activities in carrying off acorns and other nuts to points at some distance from where they fell, and secreting them in the ground for future use. Many of these hiding places appear to be forgotten by the squirrel in the press of other matters, and the cached nuts germinate, thereby regenerating the species. If the gray squirrel should become extinct, nut trees such as oak, hickory, walnut and beech would lose their most effective means of seed dispersal.

How long do gray squirrels live? There are records of captive gray and black squirrels (a color phase of the gray squirrel) living to a venerable 16 years. The writer knows of marked wild individuals that are over five years of age. Thus far no foolproof method of aging adult squirrels is known, and therefore the question of how many descendants a female (fortunate enough to elude shotgun or rifle) may have is still an unsolved mystery.

AS with other species, habitat improvement is the key to greater squirrel abundance. Erection of nest boxes similar to those used in woodduck management, and the reservation of "wolf" trees as den sites will provide and maintain good quality squirrel homes in woodlots deficient in such shelter. Planting mast-producing trees such as oaks, hickories, and walnuts will assure an abundant food supply for the future. Providing cover lanes from one woodlot to another may facilitate dispersal readily and safely from an area of high abundance to one of low population. But where the population is known to be low in a given area, refuges and a temporary closed season may be desirable.

In any case, the gray squirrel is sufficiently important as a game species to warrant the best possible management.

—ROBERT M. ROECKER,
Aquatic Biologist

PUBLIC

BY January 1st of this year, permanent fishing rights easements had been acquired by the State on 51 first class trout streams situated from the Canadian border to the lower Catskills, and from the New England line to the western boundaries. The fishing rights mileage (both banks) was 738.9 as of that date, for which the State had expended a total of $351,467.22. It should be emphasized that this trout stream mileage is in addition to the thousands of miles of trout water available to the public on the Forest Preserves and other State-owned lands.

This program was, and remains, a pioneer effort among the states of the Northeast. At the beginning it posed obvious problems: On which streams should the State acquire fishing rights—i.e., how good should a stream be as a trout producer to merit acquisition of fishing rights? What minimum stream mileage limits should be established as available before acquisition starts? What provisions and basis should be established for compensation to property owners for the fishing rights on waters flowing through privately owned lands? What steps would be taken following acquisition of fishing rights to develop properly such streams for maximum public use and continued good fishing, as well as for the protection of the landowners?

In weighing the relative value of streams, the Department made use of data secured through yet another pioneer program begun in 1926—the Biological Survey of all of the State's watersheds. Data from these studies had been analyzed in the development of a State-wide fish stocking policy and those streams receiving top grading as trout producers were selected for acquisition of fishing rights. This aggregated 1,000 miles of the total of some 20,000 miles classified by the Biological Survey as trout producing waters.

The next criteria—what would be accepted as the minimum mileage for any particular stream—was a more difficult consideration. In the initial stages, with a view to ease of public utilization as well as administrative convenience, this stream acquisition minimum was set at 15 miles. It has been only in recent years, following the purchase of rights on all the top-listed streams, that this figure has been lowered to make possible the acquisition of shorter stretches of first class streams, particularly in areas subjected to heavy fishing pressure.

Finally, just how was the man who owned the land to be approached? What were to be the terms of the agreement and how was the amount of payment to be determined? The right answers to these questions were fundamental in establishing a long range program dependent upon the continued satisfaction and good will of the landowners from whom such rights are acquired. Very briefly, acquisition consists of an agreement from the landowner conveying the sole and exclusive right and privilege of occupying and using the stream and its banks as a fishing ground and for no other purpose, for the use and benefit of the public. Such easements generally extend for a distance of 66 feet from either bank and include the right, title and interest of the owner in and to the land in the bed of said stream insofar as fishing rights are concerned. It should be understood, however, that the State, by such easement, *does not acquire title in any manner to the land* but only to the fishing rights of the vendor in and to the stream, plus a right-of-way for the fishermen to travel

YOUR PUBLIC TROUT STREAMS

STREAMS on which NEW YORK STATE has obtained PERPETUAL FISHING RIGHTS

(UP TO JAN. 1, 1951)

NOTE: This MAP does NOT include several thousand miles of state-owned public streams on State land, mainly in the Adirondacks and Catskills

TOTAL NUMBER OF STREAMS -- 51 PLUS 104 TRIBUTARIES AVERAGE TWO-BANK MILEAGE -- 738.9 MILES

Number on Map	Name of Stream	Fishing Rights Mileage	Number on Map	Name of Stream	Fishing Rights Mileage	Number on Map	Name of Stream	Fishing Rights Mileage
1	WILLOWEMOC	10.1	18	BIG SALMON	42.6	35	FISH (EAST BR.)	41.8
2	BEAVERKILL	14.8	19	LITTLE SALMON	9.3	36	FISH (WEST BR.)	32.5
3	DELAWARE (WEST BR.)	25.0	20	DEER	10.1	37	SALMON	69.7
4	OTEGO	2.3	21	ST. REGIS	11.5	38	OTSELIC	24.6
5	SCHENEVUS	7.9	22	GRASS	9.9	39	OWASCO LAKE INLET	16.3
6	SCHOHARIE	11.9	23	OSWEGATCHIE (WEST BR.)	17.3	40	CAYUTA	2.0
7	CATSKILL	17.7	24	BEAVER	21.0	41	CATHARINE	4.5
8	KINDERHOOK	17.3	25	CRYSTAL	10.5	42	KEUKA INLET	2.4
9	KAYADEROSSERAS	18.5	26	INDEPENDENCE	33.4	43	COHOCTON	15.1
10	BATTENKILL	9.5	27	OTTER	32.4	44	CRYDER	2.4
11	INDIAN	5.5	28	MOOSE	13.5	45	GENESEE	13.4
12	METTAWEE	10.1	29	WOODHULL	3.0	46	WISCOY	8.4
13	SCHROON	6.3	30	BLACK	22.4	47	EAST KOY	11.4
14	BOUQUET	13.7	31	WEST CANADA	19.2	48	CATTARAUGUS	17.5
15	AUSABLE (EAST BR.)	12.5	32	EAST CANADA	11.4	49	ISCHUA	1.2
16	AUSABLE (WEST BR.)	1.8	33	ORISKANY	.8	50	LITTLE CONEWANGO	5.8
17	CHATEAUGAY	9.1	34	MOHAWK	.7	51	CLEAR	8.8

FISHING RIGHTS

along the banks of the stream for the purpose of fishing.

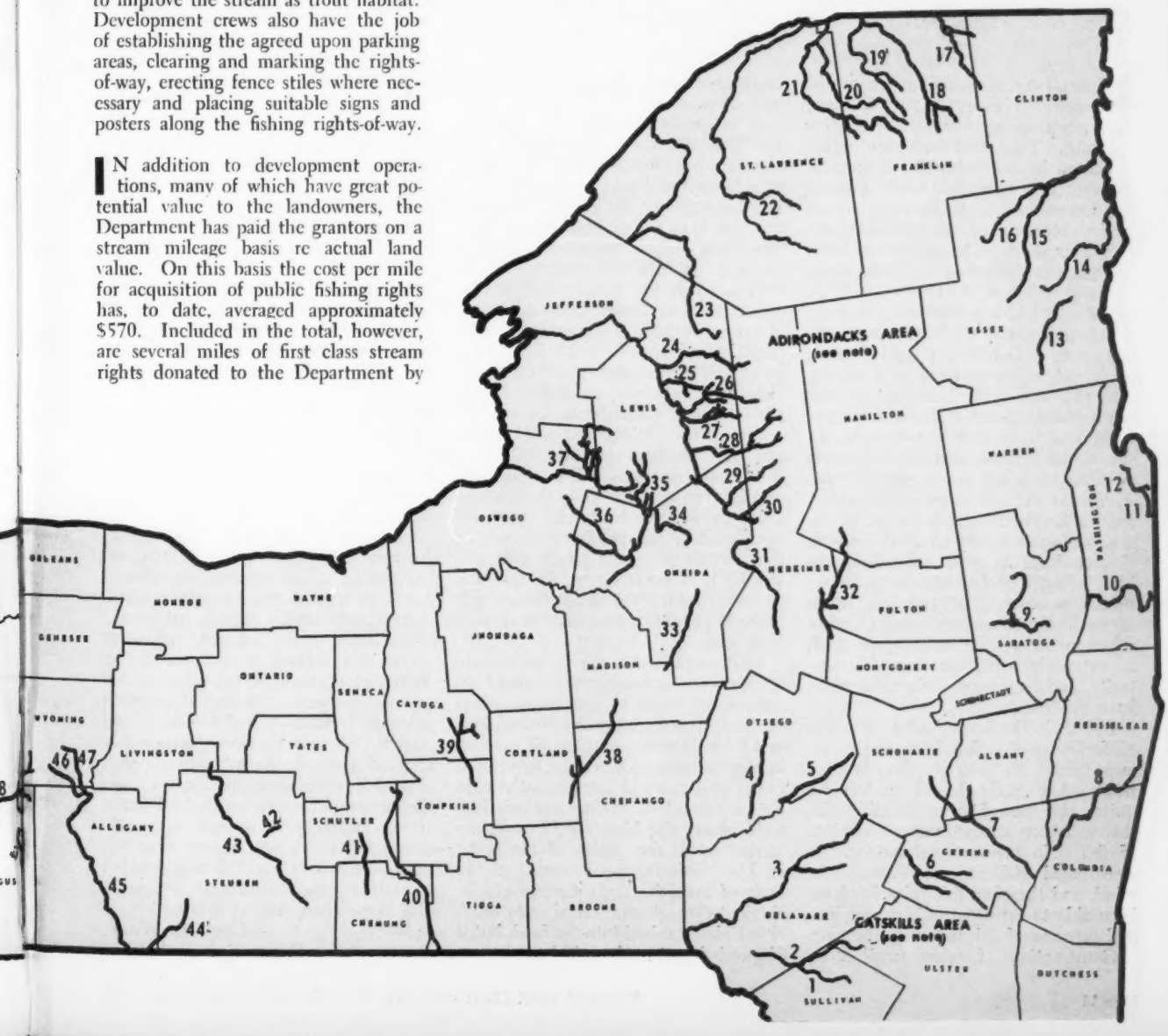
Such easements may, and do, at strategic intervals along the stream's course, make provision for parking areas and for right-of-way paths leading to the stream banks.

Further, the State has followed up its acquisition program with a companion development program designed, in accordance with the terms of the agreement, to curb stream bank erosion and to improve the stream as trout habitat. Development crews also have the job of establishing the agreed upon parking areas, clearing and marking the rights-of-way, erecting fence stiles where necessary and placing suitable signs and posters along the fishing rights-of-way.

IN addition to development operations, many of which have great potential value to the landowners, the Department has paid the grantors on a stream mileage basis re actual land value. On this basis the cost per mile for acquisition of public fishing rights has, to date, averaged approximately $570. Included in the total, however, are several miles of first class stream rights donated to the Department by public spirited individuals and corporations.

We certainly do not want to mar the reveries nor interrupt the concentration of fishermen who are attempting to drop the right fly in the right place or (this is a democracy) sink a night-walker under a ledge along any part of the 738 miles of trout water so far acquired, but we would like to point out that perpetual fishing rights on these fine streams—including such world famous waters as the Beaverkill and the Ausable—were not acquired without long and hard work. Credit is due to the Department's District Foresters, who for the past 17 years have shouldered the burden of the contact and acquisition details.

—AL. BROMLEY



Selective Breeding of Trout

IT has long been the desire of the Bureau of Fish Culture to carry on a program of selective breeding of trout. This field has been rather neglected by fish culturists, in spite of the fact that they were well aware of the tremendous advances made by selective breeding of domesticated animals and plants. The neglect probably has had a twofold source; (1) the desire to keep trout wild—that is, not to create a fat and lazy domesticated strain which performs well in the hatchery, but is an affront to any right-thinking angler when encountered in a stream; and (2) lack of facilities for carrying out a sound, scientific plan of selection.

As regards the first obstacle—the desire to keep trout wild—it is entirely possible to select for desirable traits within the limitations set by this standard itself. There appears to be no reason, for instance, why selection for such characteristics as good coloration, viability of eggs, and resistance to disease should produce a fat and lazy trout. It must be conceded, however, that selection for certain other traits such as extremely rapid growth, early maturity, and large egg production might have this effect.

But it is the second obstacle—lack of facilities—that has been the major impediment to selective breeding of trout. Any really sound project requires the use of many small ponds that will keep separate many small lots of fish. No conventional hatchery is constructed with such requirements in mind, and therefore fish culturists have been able to carry out only a very limited program of this nature in the past.

Construction of many small, concrete-sided ponds suitable for genetical work is expensive. Although such ponds were originally planned to be a part of the State trout hatchery at Rome, it was not possible to obtain the necessary funds for their construction when the hatchery was built. That hatchery has now been in operation for some 17 years, and at last the money has been set aside to build breeding ponds.

As a result, the Bureau of Fish Culture now has under construction at Rome a battery of 14 concrete-sided ponds measuring 7 by 20 feet. Each pond can be divided by screens into three compartments, so that it is possible to hold to maturity 42 separate groups of fish. When the project actually gets under way (this fall, it is hoped) the first work will be done with small fish in troughs. Only those which show promise in the trough tests will be placed in the ponds. And not all that are placed in the ponds will actually be held to maturity. In this way the use of 42 pond-compartments will make it possible to operate on quite a large scale.

First emphasis in the program is to be given to increasing the natural resistance of trout to two very serious bacterial diseases known as *Furunculosis* and *Ulcer Disease*. Both are all too well known to trout growers, for they often cause great losses in hatcheries throughout the country. In *Furunculosis* bacteria invade the blood stream and are carried to all the organs of the body. In *Ulcer Disease* sores appear on the body of the fish. Both diseases can be checked through the use of sulfa drugs or antibiotics mixed into the food, but if diagnosis is not made quickly and treatment started immediately, losses often become quite serious in spite of the drugs.

We know that different strains of trout, within the same species, differ in resistance to the diseases, and there is every reason to suppose that this resistance can be greatly increased through selective breeding. There are other common diseases which need such attention, but for the first few years efforts will have to be confined to the two mentioned.

Trout culturists are often plagued by heavy losses in incubating eggs and in young fry. Most of these losses cannot be prevented by any known medical treatments, but there is evidence that they can be bred out, for they do not occur to the same extent in all strains. The eggs and fry from wild trout, for instance, do not have as much resistance to the juvenile diseases as do those from established hatchery strains. This past fall we had an experience along this line. In our new Catskill Hatchery at De Bruce we have a pond full of brook trout of the Cranberry Lake strain. This strain is very superior in its native lake, and has qualities which we would like to see in all our brook trout. These fish spawned for the first time last fall, but the entire lot of eggs succumbed to juvenile diseases. The other lots of eggs—all from domesticated strains—experienced only the usual losses. On the basis of previous experience we expect that the eggs from the second spawning of the Cranberry Lake trout will do much better, but not as well as our regular eggs.

SINCE construction of the ponds at the Rome Hatchery has got under way we have often had some bad moments when considering the cost. We *know* what the ponds are costing, but we can only *theorize* as to the benefits we may receive. For years the necessity for controlled selection has been argued at meetings of the various fish culturist associations. No one has ever raised a voice against such a project, but on the other hand, no one seemed anxious to spend the money to get it started. When we finally made the decision, and put the money on the line, it was with mingled feelings of righteousness and anxiety. We were therefore considerably cheered a few weeks ago when a five-man delegation from the Pennsylvania Conservation Department arrived at the Rome Hatchery to inspect our partly completed ponds. It appears that our neighboring state has definitely decided to start a project similar to, but probably larger than, ours at Rome.

—Louis E. Wolf,
Senior Fish Pathologist

ELIASON

AS you drive north along Route 9, just before you get into Saratoga you pass on the left a lot of flat, cultivated fields that look different from others along the way. A network of pipes is suspended over some of them; some are broken up into long rows of neat little rectangles, side by side; some are covered over by squares of burlap, and only the initiated know what's going on underneath.

The signs say that this is a forest tree nursery, operated by the Conservation Department. What they don't say is that it's the biggest thing of its kind in the world, and that for exactly 40 years now it's been turning out trees by the multi-million.

The Department makes no bones about the fact that it is very proud of its nursery program, proud of the efficiency with which this program is operated, and proud of the results achieved. Since this program got under way 50 years ago, three quarters of a billion seedling trees have been shipped out to be planted all over the State. These trees have returned abandoned lands to production, paid dividends in forest products, provided cover for wildlife, kept soil where it belongs and streams where they belong, stabilized the water table, minimized floods, revitalized the physical environment of many a farm and many a community.

Everything considered, the Department regards its nursery program as one of its most effective, most consistently successful, and most economical efforts to make this State a better place to live in. Furthermore, this program operates according to a principle in which we have great faith: that the best way for a government agency to help a citizen is to help him to help himself.

It isn't the policy of this magazine to blow the horn for Department employees, but it goes without saying that anything like our nursery program couldn't succeed unless it had good men at the top. We have good men there. In charge is "Pete" Amadon, whose foresight and quiet efficiency and meticulous attention to detail have kept the trees coming for 24 years. Also, he is a good enough administrator to tell you that most of the credit should go to his assistant.

This is E. J. Eliason, who lives among the seedlings at Saratoga.

Eliason got into the nursery business at the close of the last war, but not as a neophyte; 18 years with the Bureau of Forest Investigations had given him a good working knowledge of trees and, apparently, a fatherly interest in their welfare. He needed both—as well as considerable fortitude—to carry out the instructions he got from "Pete" Amadon when he reported to the Bureau of Nurseries.

The instructions were simple, simple to state, anyway: (1) Modernize and mechanize the whole nursery business; rising labor costs and periodic labor shortages were threatening the whole program. (2) Find something that will kill weeds and not trees; at the time, the weeds were killing the trees.

You really can't appreciate Eliason's success with the first order until you see for yourself how things are done at Saratoga and Lowville these days. 43,000 seed beds, each 4 feet by 12, end-to-end 98 miles long and now containing 99 million trees—these beds are formed by machine, sanded by machine, sown, cultivated and fertilized by machine. And when it comes time to lift the trees a machine does it, and disposes of the excess dirt around the roots at the same time.

Then the trees go into the packing shed and onto the culling and counting tables, then by conveyor belt to an electric tree tier that bundles them. Then by conveyor belt to the packing and shipping department, and then to you if you've gotten your order in on time.

When you get your trees, you might give a moment's thought to what this mechanization has meant. It has meant that the nurseries at Saratoga and Lowville, between them, can prepare for shipment, and ship, 1,200,000 trees a day no matter what the weather, and the weather usually isn't very good at the time of year when people want trees. It has also meant that labor costs in producing three-year-old seedlings have been reduced 87 cents per thousand just during the past year, and not many businesses can report such pleasant figures. And it has meant that the nurseries can produce more trees. That's just as well, because more and more people seem to want them.

Execution of Order #2 for Eliason —get rid of the weeds—also had a good deal to do with the kind of trees you get and the price you pay for them. After a lot of experimenting he came up with a formula that did the trick, a petroleum oil spray with high specific aromatic content. It killed weeds, but not trees. It is now used not only in our own nurseries but widely in this country and in Canada and overseas. Eliason's publications on the subject have had general distribution. Maybe only nurserymen will appreciate the significance of solving the weed problem, but if you're a tree-planter, whether you knew it or not that problem has been bothering you too.

We don't mean to infer that the success of our nursery program can be attributed to any one man. It is quite obviously the result of good team work, good planning, and good administration —which could probably be said of any enterprise that involves a lot of people doing a lot of different jobs that contribute to the success of the whole project. But:

THE Fisher Award is an award given each year to the State employee who renders the most outstanding service. This year Eliason's boss "Pete" Amadon, with the Department's endorsement, recommended Eliason. He won it. We think the right man got picked.

—P. W. FOSBURGH

MEASURE your COMMUNITY....

Here's a way to show whether your area needs a job of face lifting–and if it does (which is probable)–what can be done about it and precisely where.

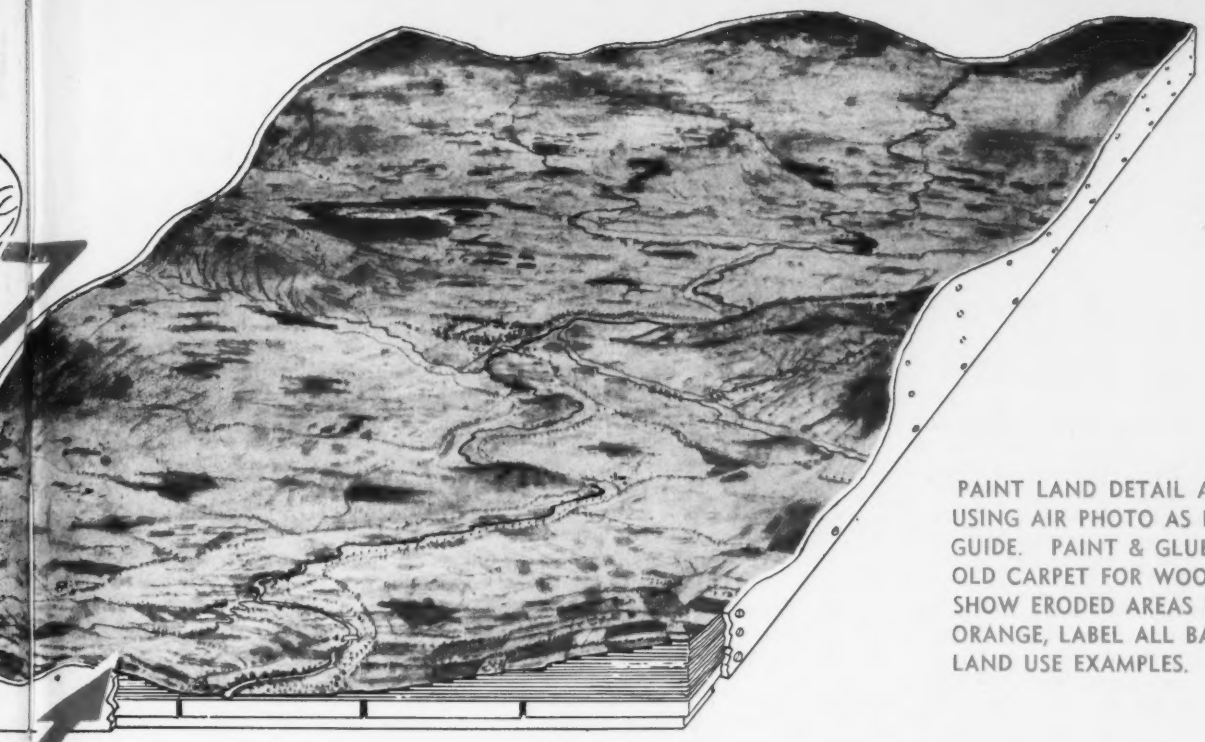
It's a project for a bank, a Central School, a Town Board, Sportsmen's Club or Garden Club, a Farm Bureau or a Grange, a Chamber of Commerce or local industry —or even an unorganized group of folks interested in the health of their community.

Make two relief maps of your community trading area or watershed. On one map paint on the land as it is: the barren slopes where floods begin, the eroded farmland and stream banks, the unproductive acres, grazed woodlots, unmanaged forest lands, dumps, sources of pollution, stream silting, dried brooks, marginal pastures.

To help find all the points of land misuse, you'll need the assistance of technicians like your county agent, soil conservation agent, district forester, wildlife manager.

On the second map, redesign your community for living. Put on what it needs to put every acre to productive work. Show the spots for reforestation, contour farming, diversion terraces, stream and road bank management, farm ponds—many of them—reservoirs, recreation areas, hedges, woodland fencing, pasture improvement, natural snow fences and windbreaks.

Display your maps in store windows, fairs, sportsmen's shows, field days, outings. Put flags on the improved areas. You've started something.



PAINT LAND DETAIL AS IS USING AIR PHOTO AS EASY GUIDE. PAINT & GLUE ON OLD CARPET FOR WOODS. SHOW ERODED AREAS IN ORANGE, LABEL ALL BAD LAND USE EXAMPLES.

SHOW NEW DESIGN FOR LIVING ON SECOND MAP. LABEL ALL CHANGES, ADD FLAGS TO ALL IMPROVEMENTS COMPLETED. MAKE CASES FOR SAFE MAP TRANSPORTATION TO FAIRS, OTHER SHOWS.

N DEPARTMENT WILL SEND FREE DETAILED PLANS
ON HINTS TO ALL SERIOUSLY INTERESTED GROUPS

Hunting Prospects

A BRIGHT OUTLOOK FOR THIS FALL

EACH summer, the Managers of the nine Game Management Districts into which the State is divided conduct game abundance surveys of their respective territories. The information collected is used by the Department in establishing seasons and bag limits for those species over which the Department has regulatory powers.

This summer's surveys have now been completed, and the results have been condensed in the table below. A quick glance at this table will no doubt produce a certain warm feeling among the State's hunting population, mingled with a certain itchiness to get going. As far as game abundance is concerned, anyway, things are definitely looking up; nowhere in the State is any species reported as being less abundant than last year (which was a good year), and all districts report increases in two or more species.

Heading the list of rising populations are cottontails, grouse, deer, and pheasants. Cottontails in particular seem to have staged a remarkable comeback throughout their range, in spite of the fact that for years they've been subjected to the longest gunning season of any game species in the State. Grouse seem to have profited from an unusually good nesting season that produced both large and numerous broods, and—within their range and subject to local variations—it appears that the same can be said of pheasants.

The deer population, in all areas where winter mortality is a standard factor in reducing it, clearly indicates the effects of two consecutive mild winters; there are relatively high populations. Elsewhere in the State (including those counties which had a "hunter's choice" season last year) abundance of deer is either "same" or "more".

Other species listed in the table below are more difficult to assess. There are indications, however, that gray squirrels are staging a comeback similar to that of cottontails, though perhaps on a smaller scale and subject to a greater variety of local conditions. The varying hare (snowshoe) has always been where you find him, but where you found him before you will probably find a larger colony now, and there may be some increase in his range.

Relatively few of the ducks and woodcock taken by New York hunters are home grown. But if home-growing is any indication of what the hunter may expect, both ducks and woodcock have been found nesting where they never nested before—as well as in the usual places. Reports indicating a similar situation outside the State would seem to augur for as good a season as last year's, and probably better. Much, however, will depend upon the dates established by the Federal government.

In spite of these optimistic reports concerning game abundance, Game Managers point out that better hunting will not necessarily result. For example, on one of his recent field checks John Wilson of the Ontario-St. Lawrence District says that he flushed 30 grouse, but would have had a decent shot at only two; the rest dodged behind the new cover afforded by the blow-down of last November 25.

The effects of that storm, wherever it hit, will most certainly have a direct bearing on hunting conditions and hunting success for many years, and for many species: (1) In the event of a dry fall, it may be necessary to close the woods during periods of extreme fire danger; (2) Some of the best hunting country is already closed (see page 33); (3) In many areas still open there is enough down timber to make the hunting of all woodland game extremely difficult.

District Game Manager Greenleaf Chase of the Adirondacks guesses that the most serious result of these conditions (as far as game is concerned) will be an inadequate harvest of what for several years has been a bumper crop of deer; hunters just won't be able to get at them. This in turn will mean an excessive number of deer moving onto an already depleted winter range. The blow-down provided some temporary food, and in a few years the new growth will provide more; but meanwhile we will be confronted with the problem of too many deer for too little food.

A word to the wise hunter: Keep out of blow-down areas. If you don't know where they are, check your back issues of THE CONSERVATIONIST or ask Department field men.

BEFORE somebody else says it, we would like to point out that there's always something that stands between a hunter and the realization of his dreams. (Some people think it's the Conservation Department.) But a hunter can dream, can't he? Just look at that table.

1951 GAME ABUNDANCE COMPARED WITH 1950

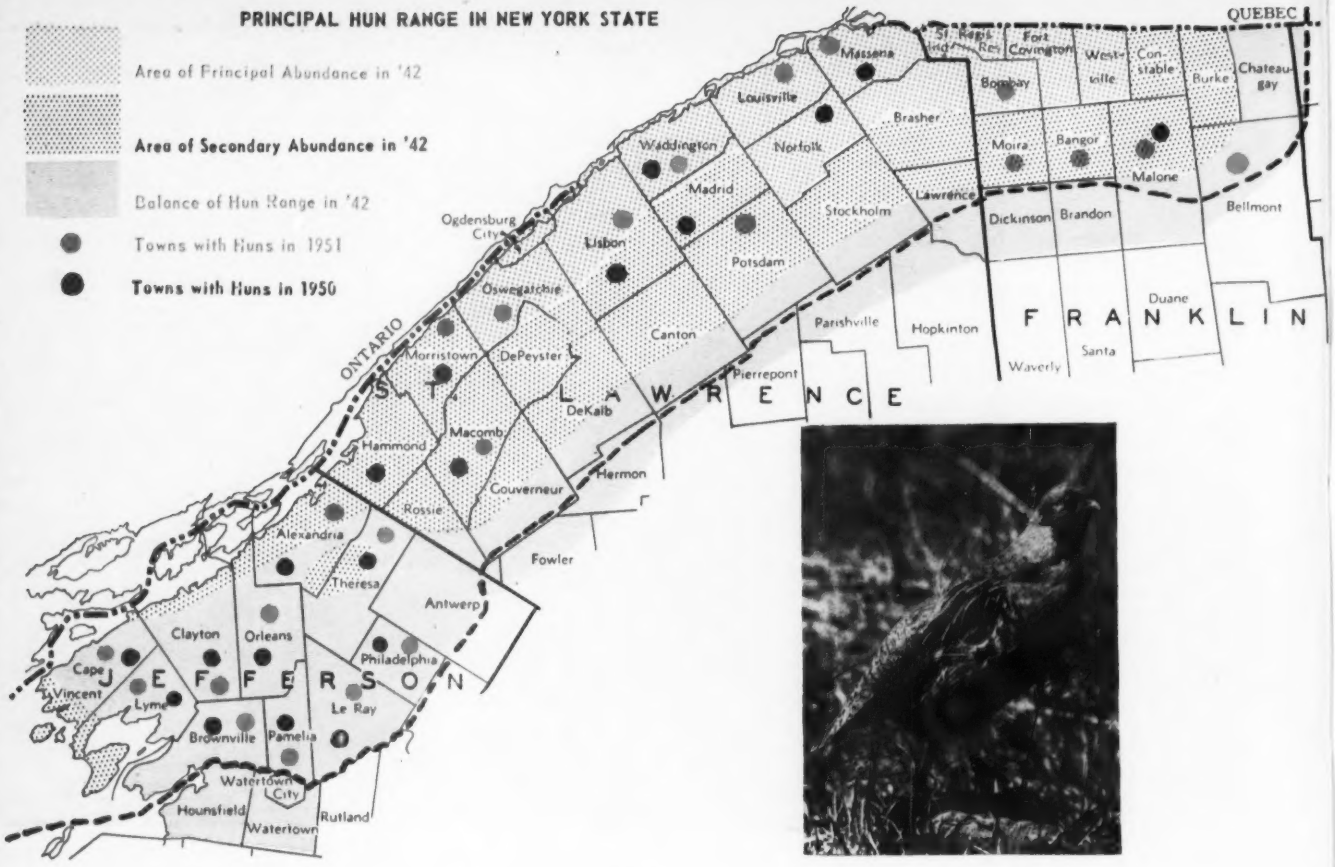
DISTRICT	GROUSE	PHEASANTS	COTTON-TAILS	VARYING HARE	SQUIRREL	DEER	WATER-FOWL	WOOD-COCK
ADIRONDACK	More	Same	Same	Same	Same	More	More	More
ALLEGANY	More	More	Same	More	Same	More	More	Same
CATSKILL	More	More	More	Same	More	More	Same	Same
NO. CENTRAL	More	More	More	More	More	Same	Same	More
E. CENTRAL	More	More	More	Same	Same	More	More	Same
S. CENTRAL	More	More	More	More	More	Same	Same	Same
LAKE PLAINS	Same	Same	More	None	Same	More	More	Same
LOW'R HUDSON	More	More	More	Same	More	Same	More	More
ONT.—ST. LAW.	Same	Same	More	Same	Same	More	Same	Same

Insects on the rampage

ABOVE, FOREST TENT CATERPILLAR: *Those are not shadows in the aerial photograph, but trees denuded this summer by an unprecedented invasion of forest tent caterpillars. Approximately 15,000 acres in the vicinity of Lake Ozonia (shown in the photograph) were stripped. Masses of insect caterpillars congregated on the trees, fences, roadways, leaving the countryside brown, leafless and odoriferous from the millions of decaying caterpillar carcasses. If similar defoliation occurs next year, the Department contemplates aerial spraying. If attack is not repeated, most trees will suffer only a loss of growth.*

LEFT, GYPSY MOTH: *For the first time since this insect became established in New York, Bureau of Forest Pest Control personnel have reported an instance of 100 per cent defoliation. This was an area of about 100 acres in the Town of Dresden, Washington County. Control is established by aerial spraying executed jointly by the Federal Government and this Department.*

RIGHT, BIRCH LEAF MINER: *An insect that has been attacking grey birch, particularly in the Albany area, for the past several years, and which has now extended its range to include the Adirondack region and parts of the Southern Tier counties. Birch leaves wrinkle and turn brown. Continued attacks may result in death of the trees, but birches are able to put out a second leaf growth after the first has been destroyed by the insect. Control is a problem for the individual landowner, who may write to this Department's Bureau of Forest Pest Control for the latest information on insecticides to be used.*



more Huns than you think

WHEN a bird hunter says "Hun," he's not drooling an abbreviated expression of endearment to an undoubtedly long-disillusioned mate. On the contrary, he's referring to a grayish-brown game bird with a chestnut-colored, horseshoe-shaped spot on its breast; midway between a quail and a ruffed grouse in size; commonly called the Hungarian partridge, more properly the European gray partridge and technically by species *Perdix perdix perdix*.

If he is an average bird hunter, unimpeded by a load of that folding stuff so necessary in the barter of worldly goods and in taking gunning trips to distant lands, he probably knows no more about Mr. and Mrs. Perdix P. Perdix than he has been able to learn from within the covers of outdoors magazines wherein frequently appear yarns concerning the hunting of this species—usually on Canadian prairies.

But (and this may surprise you) it's not necessary to go to Canada or some distant state to take a look at the Hun in the wild for—believe it or not—he is well established in New York. His primary range here is the St. Lawrence plain area of Jefferson, St. Lawrence and Franklin counties in northern New York.

In case you have never seen a Hun, his plumage is predominantly gray with an intermixture of black, white, rust and cream. In addition to the identifying horseshoe patch, the outer tail feathers are reddish brown, a conspicuous mark when the birds flush. There is little difference in the appearance of the male and female. However, sexes can be identified through a variation in markings on the wing-covert feathers. In the female, they appear checkered while in the male they seem streaked.

Huns are ground feeders. Food of the adults is almost entirely vegetal, with most important items waste grain, weed seeds and green leaves. The chicks take considerable animal matter during the first month. Most satisfactory habitat is highly agricultural country, having a cool, moderately dry climate, and the birds live largely in open fields. Leopold (1931) pointed out: "Hungarians come nearer to being able to get along without cover than pheasants or quail. Apparently they need neither brush nor woodland, but during snow they do require some heavy grass, weeds or standing corn."

Except during the breeding season, the Hungarians are found in coveys which flush and otherwise behave largely as a unit. They roost on the ground; their territory is small, generally under a quarter of a mile in radius, and they are not migratory. In winters, they huddle together closely for warmth. Green of Iowa reports flushing a covey of nine on several occasions and observing that the depression they left in the snow was smaller than that made by one pheasant.

In flight, the Huns are much like quail. The entire covey flushes together with a loud whir. After this disconcerting takeoff, they spread wings and sail for some distance. They are strong fliers, and their speed has been "clocked" at roughly 35 miles per hour for short distances.

The species is prolific, breeding the

following spring after hatching and laying as many as 20 eggs per hen. Nests are simple, usually in depressions in the ground. In Ohio, Hart (1944) found 70 per cent of the nests in roadside ditches, low places in fence rows and low spots in fields. Selection of these sites seemed to be directed by dampness and coolness. Incubation takes 23 to 24 days. The chicks are small, like quail, and are streaked with brown which gives them a striped appearance. They are able to fly fairly soon after hatching. The Ohio studies revealed only a relatively small percentage of nesting attempts were successful, that roadside mowing prior to July 10 was exceedingly damaging and that losses through predation were not important except during the course of the breeding season.

A native of central and southeastern Europe, the bird is most common in the agricultural plains of Hungary—hence its name. It was introduced in the British Isles at an early date and has been established there for several centuries. Since the first liberation in 1870, large numbers have been released in North America where the species is most successful in several north central States and the southern portion of the prairie provinces of Canada.

There is little specific information on the first liberations of Hungarian partridge in New York. It is known, however, that prior to 1917 there was a release in the Batavia section of Genesee County and that prior to 1920 there was an introduction in northeastern New York. From these introductions, restricted colonies were created which never expanded.

The principal effort at introduction here was the State-wide release of 27,750 adult Hungarians imported from Czechoslovakia by the Conservation Department from 1927 to 1932. Department annual reports for those years reflect early optimism, shifting to pessimism as the Hun failed to become established over most of the State. Introductions were halted in 1932.

Over the years, reports of Huns being seen grew fewer and fewer as the birds disappeared. When District Game Managers were checked recently, only three outside of northern New York had heard of Huns in their regions in the past ten years. Wunder knows of three or four colonies in Allegany County, which have existed as coveys from the time of the original introduction with no extension of the population. Kelsey said his office in Ithaca and the Cornell Laboratory of Ornithology last received reports of Huns in the Perryville-Lansing-King's Ferry area in 1947, and Perry of the Lake Plains had his last confirmed report about 1940 near Dansville.

BUT, there's a different story in the extreme northern part of the State. There the Hun population has grown and extended its range. In 1942, Bill Severinghaus, who now handles New York's deer investigations, perceived what was happening, made a hasty reconnaissance, and filed a report in 1943.

He discovered the birds apparently had first adapted themselves in the relatively flat country along the St. Lawrence River between Ogdensburg and Fort Covington—a belt ten or twelve miles wide and about 60 miles long.

Severinghaus divided the Hungarian range in the region into three areas of varying abundance, as shown on the accompanying map. The area in which Huns were most plentiful in 1942 is red-dotted. There, in good cover, sportsmen were finding two to three coveys of 10 to 15 birds in a day afield. Four out of eight farmers contacted at random along the Louisville Landing-Ogdensburg road reported two or three coveys of from eight to 20 birds on their farms and all knew of coveys on adjoining farms. The men estimated 30 to 100 Hungarians for each pheasant in the area. The black-dotted section of the map was the region of secondary abundance. In this territory, Huns outnumbered pheasants five or ten to one. In the remainder of the range, shown red-lined, he found coveys widely scattered and Huns less numerous than pheasants.

By analyzing individual observations, Severinghaus estimated the 1942 Hungarian population of this area at about 14,500 birds, 3,500 in Jefferson, 7,500 in St. Lawrence and 3,500 in Franklin. His report added that the birds suffered greatly in the winter of 1942-43.

Managers John Wilson of Ontario-St. Lawrence, and Greenleaf Chase of the Adirondack district, have followed the birds recently. They relate a sharp decline took place in 1943 from the all-time high as a result of one of the most severe ice storms on record in northern New York in late December, 1942. Wilson explains the small coveys merge during these ice storms, flocks up to 75 birds resulting, and increased predation, accidents and starvation reduce the population. Chase adds that dispersals into poorer range in movements forced by ice also cause losses.

They report the '43 decline was followed by a gradual recovery until the winter of 1946-47 when another ice storm caused a slump. There since has been a continuing buildup, and there now is a Hungarian population comparable with that of the early 40's.

Why the Hun stocking should "take" in northern New York and not elsewhere is a pertinent question. Authorities abroad have noted greatest Hungarian success in areas of low rainfall and light soils. Best range in England has total June, July and August precipitation between 4.5 and 7 inches. The Cornell Bulletin 764 on "The Climate of New York State" points out that only three sections of the State receive less than a total of nine inches for the months mentioned above, and one of these is *the area around the head of the St. Lawrence River.*

There remain two questions to be answered: Should there be an open season? When?

Ray Burmaster, District Protector at Saranac Lake, has some interesting views on the subject. He has gained the impression, watching the birds, that their behavior is much like quail and "it's reasonable to compare them to quail." He also has talked with a host of old-time quail hunters in the South about how quail should be managed. All agree coveys should be broken up by hunting if you want to avoid sharp declines. As a result, he's convinced the best way to hold the Huns is through limited hunting.

These added facts are pertinent:

1) Substantial surpluses which could have been harvested have been lost through excessive winter kill in two severe ice storms in the past nine years.

2) The population has twice demonstrated its ability to bounce back quickly to high levels with sharply reduced brood stocks after excessive winter losses.

3) Despite long protection, the Hun population never extended its range beyond western Clinton County and southern Jefferson County.

4) The Province of Ontario to the north has an open season which apparently has not overcropped its Huns.

THERE is an old saying that "the proof of the pudding is in the eating." Well, the proof whether Huns in the St. Lawrence plain can supply gunning pleasure annually to some New York sportsmen will be found only in the shooting. Sportsmen up north realize they can never have pheasant hunting like that of the Lake Plains, but, it looks as though they might have something in its place—the Huns. There's no better time than now to find out what should be done about it. Besides, those north country winters are unpredictable. We may have another rip snorter of an ice storm in a year or two, and again winter will harvest Huns instead of the hunter.

—ROBERT A. WELLS

Search for lost persons

FOR the Forest Ranger, Game Protector, or State Trooper, the vacation seasons in the Adirondack and Catskill forests would be far from complete without the occasional jangle of the telephone bell (usually about midnight) reporting that somebody is lost, strayed—or something—in the woods. These people don't call just to tip you off; they want help, and right away. It's part of our business to provide it.

The type of help that we provide depends first and foremost upon as complete an analysis as possible of what has happened. Is it a child that has wandered away from his home? Is it an elderly person who may have become confused and simply meandered away? Is it a hunter who failed to make a rendezvous with his companions? Is it a hiker who should have returned from a long trip several days ago but who has failed to appear? The kind of search we plan depends on who has gotten lost, how long he's been lost, the kind of country he's lost in, the weather, and a great many other factors (including the time of day) that may have bearing on the situation. In short, an analysis of the individual situation is absolutely essential before beginning search operations.

No matter what the situation, however, I would like to point out that although many "lost" persons are found and have nothing to show for the experience but a red face, we who are in the business are obliged to consider all incidents reported as serious. The fact that a person is overdue should never be taken too lightly; the possibility of injury or illness is always present, and unless prompt measures are taken it may be too late. Therefore, the first rule of procedure to follow is to report promptly to the nearest Ranger, Protector, or State Trooper the absence of one of your party.

In general, the search system used by these State officials and their helpers can be applied on a smaller scale by any group of hunters or vacationers searching a limited area for one of their party. The essential purpose of this article is to describe how such a limited search can be made.

To begin with, no such search should be undertaken without the most thorough possible preliminary organization. Too often a party of hunters, noticing one of their members absent, breaks up and goes banging through the woods much to the confusion of the lost one and of the searchers themselves. Instead, a search should be preceded by a conference at which: (1) all known facts concerning the situation are carefully analyzed; (2) a leader of the search is agreed upon; (3) a detailed plan (including communication signals) is worked out and (4) a time schedule for the search planned.

I would like to repeat that the "you go here, I'll look over there" type of search rarely produces beneficial results.

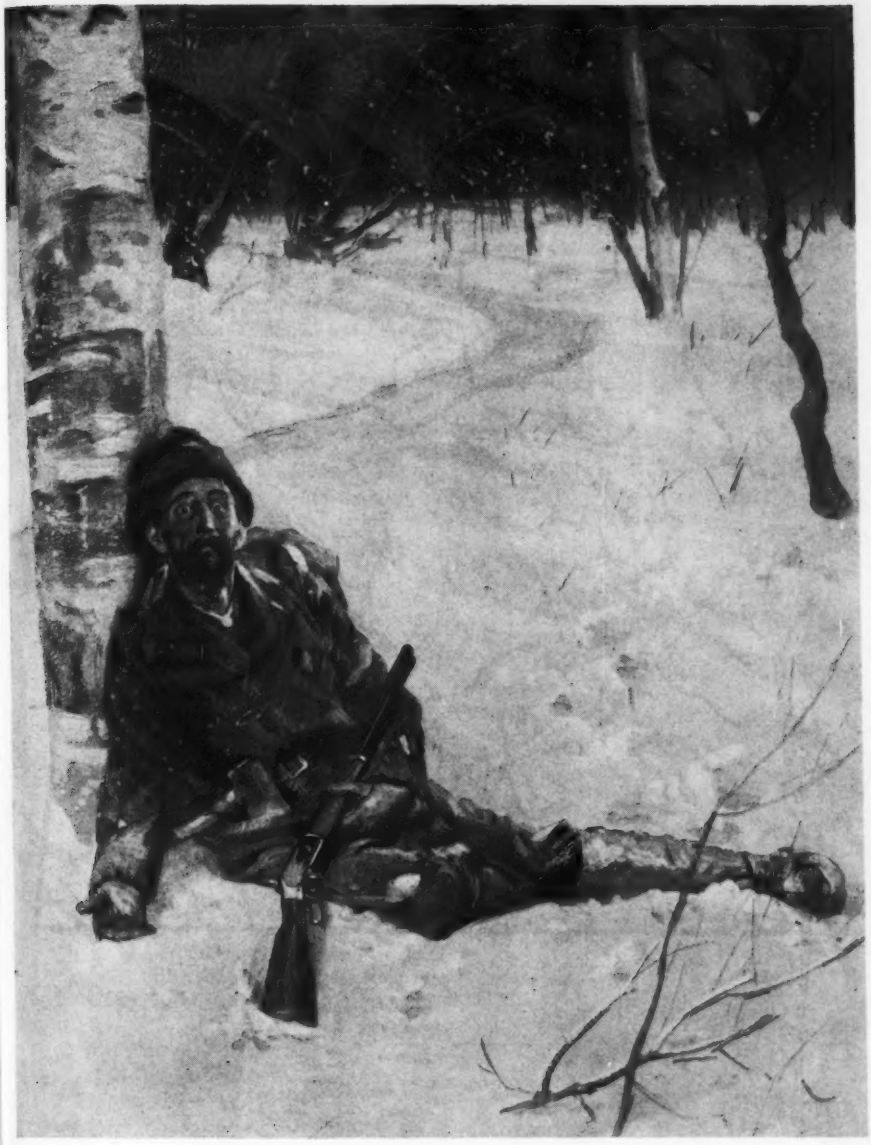
Once a plan of search has been agreed upon, there are a number of methods that can be used. Preliminary procedure used in rough terrain is to post members of the party along trails or woods roads that traverse the general area in which the person is thought to have become lost. These searchers should stay put and make plenty of noise; if they move around it serves only to confuse both the lost person and others in the search party. Persons so posted are often able to "shout in" the missing member of the party.

In the event that such an elementary type of search should fail, something more detailed and more highly organized is required. A favorite system is the abreast or straight line formation, which involves a line of searchers spaced closely enough to get good coverage of the ground and operating with military efficiency. It is an absolute necessity that the searchers sweep across the area in a straight line and with the proper intervals. The use of compasses by the line "guides" is also usually essential.

Working from a base line—either a line formed by a road, stream or other topographical feature, or a line established by compass—the searching party moves at right angles to this line for a predetermined distance, usually about 40 chains or a half mile. As the crew leaves the base line guided by the compass man (he should be either at the center or on one of the flanks) each man guides either to the right or to the left on the companion next to him. The man on the end of the line occasionally blazes or scribes the tree on the course ahead of him. If this mark is blazed on the side of the tree opposite to the direction which he is traveling, then when the end of the strip to be searched is reached and it comes time to reverse the course, these marks will be plainly visible to the man who guides the return search. The return sweep covers the area immediately adjacent to the one searched previously.

A definite pattern is thus obtained, and if the spacing of the searchers has been properly arranged complete coverage is accomplished. But one searcher misplaced, or one searcher not thorough in his work can undermine the entire operation. And it should be remembered that the lost person may be lying unconscious in a thicket of evergreens, or at the foot of a cliff, or in a pool of water. If spacing is vital, so is thoroughness.

The success of a manhunt often—in fact usually—depends upon another factor beyond the control of the searching party. This is the lost person himself. Unless he behaves properly he can foul up the best executed search.



"LOST IN A SNOWSTORM"

By Hy S. Watson, for the 1904 annual report of our Forest, Fish and Game Commission. Also published in this magazine four years ago

Almost anybody can get lost. Maybe you misjudged the distance and the time needed to reach your objective and can't return to your starting point before darkness overtakes you. Maybe a wounded deer leads you into strange territory. Maybe you are out berry picking and following a maze of old log roads through cuttings and clearings that don't look the same when you start going back. Or maybe you're striking out cross country and find that you have to go around a hitherto unsuspected beaver flow that takes you way off course when there's little daylight left to travel. What do you do?

As pointed out by Al. Davis in the last issue of this magazine, the thing *not* to do is get panicky. In any case, it's extremely unwise to travel in the woods after dark unless you're on a trail and know exactly where you are; the danger of injury is too great, and a night in the woods, although possibly unpleasant is usually no more serious than that. Sit down, light a fire and make yourself comfortable. Wait for daylight before making your next move.

If you have a gun, it can be used for signaling to good advantage. *The universally accepted distress signal is three shots fired with approximately five seconds between shots.* During the hunting season, the chances are that such shooting would not get results during the daytime, since there are too many hunters banging away. But at night gunfire means either trouble or illegal hunting. Don't waste your ammunition. Wait at least 30 minutes before firing a second string of signal shots. And if you don't hear the *single answering shot* (also a standard signal) just recall again that almost anybody can live through a night in the woods.

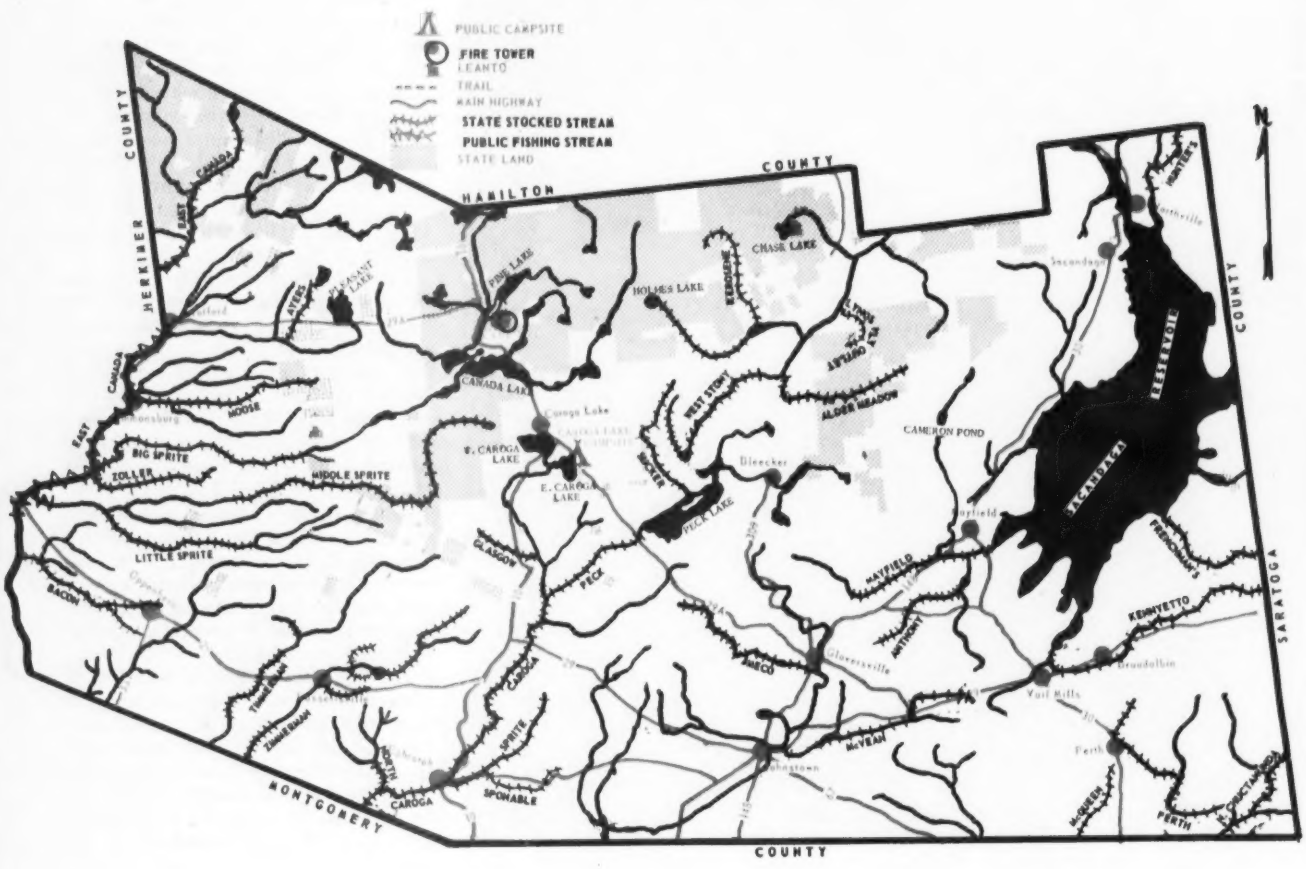
Lost persons often indulge themselves in some peculiar psychological behavior. We have already mentioned the possibility of panic. But on numerous occasions, once a lost person has located the search party and is now confident that help is near, he is seized with a sense of embarrassment and injured pride which may prolong the search still further. There are many instances of lost persons hiding from the searchers, apparently to avoid the necessity for a confession that he was ever lost. Those who have been in on such searches sometimes can't help but be regretful (even if momentarily) that they were successful.

In many ways, people who travel cross country in the woods are like those who navigate on the ocean or in the air. The aircraft pilot files a flight plan. Even the most experienced woodsman should do the same thing; that is, he ought to let other members of his party know where he intends to go, and when.

But suppose you get lost, or suppose you become ill or exhausted and just can't go on. If you haven't got a gun to signal with, then throw up a dense signal smoke, being careful of course to clean off the ground down to mineral soil before starting your fire. If there is any flying weather at all, Department planes or others will spot your smoke and Rangers will be on their way to help within minutes. If you have no matches, try to work your way to a clearing or to bare spots or hill tops, or to the shore of a body of water. Waving light colored cloth, birch bark or even a light colored slab of wood may help aerial observers to spot you more easily.

DO native sons get lost? Well, being one of the species, I've got to be careful on that one. I'm mindful of a deer hunter who spent a stormy night in a swamp while his wife anxiously awaited daylight and the return of the searching party. This deer hunter, if not lost, was badly bewildered.
—WILLIAM E. PETTY, *District Forester*

FULTON COUNTY



More than 1,600,000 fish were stocked in this small county last year, of which 110,520 were trout, the rest walleyed pike. Only streams receiving at least 500 trout are named on the map. The majority of the streams and ponds received brook trout (which totaled about 51,000) and 23 streams were stocked with more than 48,000 browns. Canada and Pleasant lakes got 11,000 lake trout, while Sacandaga Reservoir (where the world record 42 lb. 2 oz. great northern pike was caught) received 1,500,000 walleye fry.

All State-stocked waters, and all waters in the State-owned Forest Preserve, are open to public fishing. Complete lists of stocked waters in this or other counties are available from the Albany office. The State-owned lands are also open to public hunting, hiking and other outdoor recreation.

Because of the bad blow-down last November, be sure to check with local conservation authorities before planning trips into the wilds. Special care should be taken to prevent starting forest fires.

There is one State Public Campsite on Caroga Lake, a State Fish Hatchery at Johnstown and one Public Fishing Rights Stream, the East Canada, with a few miles on its tributaries Sprite and Middle Sprite. There is a State-maintained trail leading to the one lean-to at Chase's Lake. The only fire tower is on top of Kane Mt. (Pine Mt.) just north of Canada Lake.

All the county north of Gloversville is within the Blue Line (Adirondack Park) of which nearly one-half is a part of the State-owned Forest Preserve.

A large percentage of the hides from deer shot in this county (as well as in the rest of the State) end up as gloves and other buckskin products in Gloversville and the surrounding localities, which together make up one of the biggest centers in the world for such trade.

Located in the county is most of Sacandaga Reservoir, one of the largest of its kind, a fishing mecca and a major factor in controling floods in the Hudson River Watershed.

—FRED EVERETT

LAKE COSSAYUNA

PHYSICAL CHARACTERISTICS:

Location: central Washington County
Area: 776 acres
Elevation: 495 feet above sea level
Maximum depth: 25 feet
Length: 3.0 miles
Maximum width: 0.7 miles
Water: medium hard
Oxygen: deficient in deepest water; good otherwise
pH: Alkaline
Water temperature: about same from top to bottom
Plant life: dense beds of water plants

FISH:

Largemouth bass, smallmouth bass, northern pike, pikeperch, yellow perch, crappies, rock bass, common sunfish, bullheads, common suckers

FISHING:

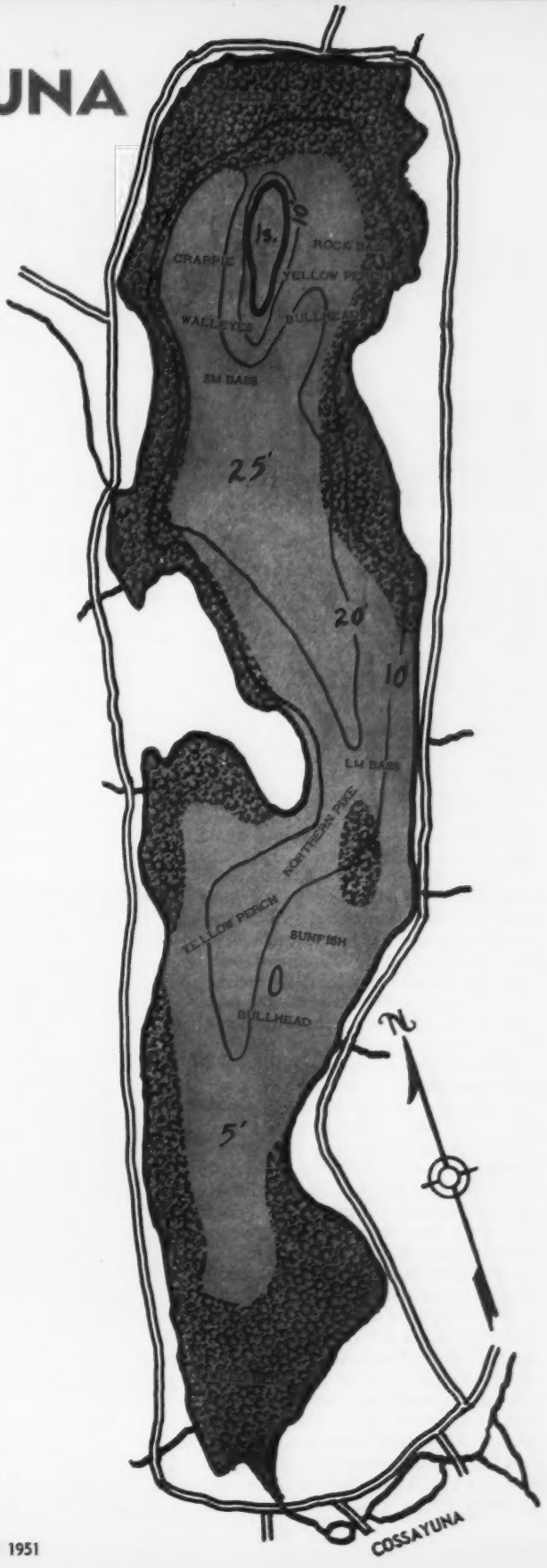
A productive warm water lake. All species of fish are fairly well distributed throughout the lake. Best fishing for smallmouth bass, pickerel and crappies is off the island

MUSKRATS:

Population has been built up by restocking and closed season
Muskrats help prevent dense weed beds from spreading

HUNTING:

Ducks, with blacks the principal local species
Grouse plentiful on wooded hillsides near lake
Pheasants on high land around lake, and along edges of big swamp
Cottontails common
Woodchucks common



SCATTER SHOTS

notes of general interest

BIG TIMBER

When you hear the term "big timber" you naturally associate it with the North Country—the Adirondacks or perhaps the Catskills—but not with little Rockland County. But along the lower reaches of the Hudson River, just off Route 9 W and within sight of the Empire State Building, a tract of 30 acres of big timber was cut under the Forest Practice Act this spring on land historically claimed to be where Major Andre, the British spy, was captured. This property is owned by FPA Cooperator John Collins. Mind you, this was not any park or rambling estate, but woods, real woods.

Representing eight different species including tulip poplar, white, red, black and pin oak, maple, black birch and sweet gum, 252 trees were cut and the volume came to 117 thousand board feet (which isn't hay!). With marking to a 16-inch minimum diameter limit, the tulip poplar ran the bulk of the cut (and largest tree, 40 inches—4 logs), with black and white oak and red gum following in that order.

Interesting side-light of this case was the fact that although sweet gum (*Liquidambar styraciflua*) is at the extreme northern end of its range here, it ran fair quality to as large as 38 inches in trunk diameter. The reproduction of the sweet gum in a rich moist site is very prolific, producing a dense even-aged pole stand growing like blades of grass, intermixed with tulip poplar.

The logs were cut tree length, the largest being a tulip measuring 2,386 board feet (mid-diameter Doyle Scale). The oak was used by a custom mill specializing in ship timbers and for the most part went into keels and drive shaft blocks. Some went into furniture stock and various other uses. This mill, which is a big time establishment using yard overhead cranes, can boast of probably the longest carriage in New York State —45 feet.

The cutting was a timely operation, as many of the trees were mature or over-mature. But the cut left a fine stand of timber and released many up-and-coming trees to produce another good crop of timber in the not too distant future.

So when it comes to big timber, don't sell the lower part of the State short; there are other stands lurking in places just outside of the Big City that can equal or even surpass this woodlot, in the land of High Tor that the Dutch and British settled over 200 years ago.

—S. G. Bascom, *District Forester*

WHA' HOPPEN HERE?

Did some logger cut this the day after the Blizzard of '88, or is it just one of Paul Bunyan's high stumps? Anyway it's a spruce (or was), and it's up in the Indian River country

IT'S DYNAMITE!

The Department's Bureau of Forest Fire Control uses a large number of walkie-talkie radios in its work. Much of this work is now being done in blowdown areas where salvage operations are in progress and where dynamite is constantly being used. Therefore, the following memorandum:

To Field Personnel: In the July 16, 1951 issue of "The Constructioneer" a notice appears warning that dynamite caps should be transported only in metal containers in the vicinity of a radio transmitter. It further states that tests show a real danger of exploding the caps if a radio transmitter is used within 20 feet of an uncoiled wire on the cap. It warns that *transmitters should not be operated within 50 feet of any electric blasting operation.*

We have checked this warning with the United States Forest Service and have been advised by them that they consider it to be most dangerous to operate any transmitter within 50 feet of electric blasting caps, and that Forest Service personnel have been so notified.

Will you make certain that this warning is received by all personnel in your district who now operate radio transmitters or who may have occasion to operate them and to all employees who may be associated with the use of dynamite caps.—K. F. Williams

COUNTY MAPS

Our policy with regard to the publication of county maps (see page 28) is to cover all of the Forest Preserve counties before moving farther afield. By and large there are more recreational facilities in these counties than in others, and we get more inquiries concerning them. Reprints are available for most of the Adirondack and Catskill counties, and the coverage will soon be complete. Warren is next on the list.

COVER FISH

The colored plates on the back cover show two species of the smaller game or pan fish type which the summer angler may expect to encounter frequently. Both provide good sport on appropriately light tackle. Except for a few additional protection clauses in the Conservation Law book, applicable only locally, there are no size limits or bag limits and year-round fishing is permitted for these species.

The rock bass is very numerous—too numerous in the opinion of many anglers seeking black bass or other larger game fish. It has a big mouth and opens it at every opportunity to take minnows, crayfish, worms, spinners, flies and other natural or artificial baits, day or night. No fish is easier to catch. Too often, the small size of a rock bass causes it to be returned to the water; small or large, they should all go into the frying pan at every opportunity.

Although a somewhat daintier feeder than the rock bass, the black crappie, calico or strawberry bass is somewhat similar to the rock bass in appearance and habits. A small minnow, fished well off bottom, is considered the best bait. although worms, spinners and flies will also take calicos. The best catches are usually made in late spring and in midsummer more skill may be required in locating the fish, which often take to feeding upon small food organisms difficult to imitate successfully.

Both of these fish belong to the sunfish or black bass family and the males prepare a clean area or "nest" to receive the eggs. They guard this area vigorously and with obvious success, for reproduction is usually excellent. In fact there are often too many rock bass and crappie produced for best growth rate. Moreover, these pan fish compete directly against black bass and other more desirable fish.

Most anglers dislike to clean a mess of small fish—which works out to the advantage of the tribe of calicos and rock bass. Then too, when tackle is built to handle the four pounders, the four ouncers are not considered too ex citing. But rock bass and crappies scale easily and are not hard to prepare, and going after them with light tackle is good sport. Eating them is also a pleasant pastime.

Eating a well-browned rock bass or calico is a real experience, not to be dived into hastily. A little study of the interesting skeletal structure of these fish is to be recommended if you want the bones on your plate, not in your throat. It will be found, however, that every fin, with its sharp spines and bones can be easily plucked out after cooking. Or before cooking, a sharp knife can be run along each fin and the entire bony structure can be pulled out. Swallowing a crust of bread should take care of the occasional bone overlooked by anyone too intent on getting his share of these delicious fish before the rest of the family cleans the platter.

THE GOOSE AT WORK

Shown in the photograph above is the Department's amphibian Goose, being loaded with lumber at Moffit Beach. About 40,000 board feet, as well as nails, gasoline, food and supplies were flown in to Cedar Lake, where the dam is being rebuilt.

Including loading and unloading time, the Goose made the round trip in 45 minutes, carrying a payload of about 2,000 pounds each trip. Hauling a smaller load, a tractor would have taken about two days to make the round trip in to Cedar, and by using the plane Department men estimate they got the job done about 50 per cent cheaper.

REVERSE TWIST

The secretaries of sportsmen's clubs have one thing in common: a tough time getting members to attend meetings. The usual procedure is to make the meetings sound as important as possible in the advance notices, but even this often draws a feeble response.

Below is a notice sent out by a fed-up secretary who decided to try a reverse twist:

> CENTRAL CITY SPORTSMEN INC.
>
> Regular Monthly Meeting
>
> July 10th, 1951
>
> *There will be the Regular Monthly Meeting of the Club at the Club House with nothing of great import so it does not matter much if you are there or not.*
>
> Andy Schoch, Sec.

JOHN'S BROOK NOTES

During the ceremonies incident to the dedication of the Wm. G. Howard Memorial Lean-to on the John's Brook Trail to Mt. Marcy, a Canada jay flew across the brook and perched in a nearby spruce, taking great interest in the proceedings. This lean-to was a gift to the State from the Adirondack Mt. Club, of which Mr. Howard was a charter member.

Trails Ranger Edmonds plans to set a 12-foot spruce log in the ground at the Howard Lean-to, on which campers and hikers can carve their initials and thus prevent the mutilation of the lean-to. A sign will label it, "Totem Pole Register—Do your carving here." If the idea takes (and it should) this pole will be of great interest ten years hence.

While preparing the ground for the Howard Lean-to, Ranger Edmonds dug up an old hand made trap about 18-inches long which District Forester Petty said was a deer trap. It is probable that this trap (which now hangs on the Ranger Cabin porch) belonged to old Mel Hathaway who lived in a cabin where the ADK Mt. Club Lodge now stands. Mel was a famous trapper, and his blazed trap lines can still be followed between the Lodge and the Big Slide Mt. ridge.

HERON NEST

The photographs below, taken by Thomas Warner near his home in East Greenbush, show great blue herons in the egg and pin feather stages. The nest was on a hummock in a swamp

MORE ON TREES

The 7,300 orders that took 30,000,000 trees from our State nurseries this past spring came pretty close to soaking up the available production at that time. However, after private orders had been filled our State forests got 2,384,250 for spring planting. Of these, 1,887,950 were white pine, the balance was in red, Scotch and Jack pine, Norway and white spruce, Japanese larch, hemlock and balsam.

Another million trees will be planted on the State reforestation areas in the fall. The production of the nurseries for '51 spring and fall planting totals 34,000,000 trees.

BACK ISSUES

We have had so many requests for back issues, and so many letters from people offering to sell them, that we can no longer publish such letters. Instead, we are trying to set up a sort of clearing house here in the office; if you want to buy or sell, just write us and we'll try to put you in touch with the right party.

THE SOILS OF FLORENCE

In connection with the article on page 2, it may be of interest to at least some of our readers to know how the Soil Conservation Service classifies the soils of Florence:

Holly Fine Sandy Loam: Poorly to very poorly drained, acid bottom land soil. Subsoil heavier than surface soil. Frequently flooded. High water table. Best suited to pasture, wildlife or woods. Not generally recommended for drainage unless area is small and next to better drained land.

Atherton Silt Loam: Poorly to very poorly drained, acid terrace soil. Rather heavy subsoil underlain by gravel and sand at about 2 to 3 feet. Best suited to pasture, woodland, or wildlife.

Ricard Stony Loam: A well drained, very acid, stony soil. Compact material beginning at 2 to 4 feet in depth. Low productivity. Use limited to pasture, woods, or wildlife.

Empeyville Stony Loam: An imperfectly drained, acid soil. Hardpan at 20 to 24 inches below the surface. Use limited to pasture and woods. Only slightly erodible due to stone cover and gentle slope.

Muck: Undrained, 15 to 40 inches deep, underlain by acid sand.

Alton Gravelly Loam: Well drained, and terrace soil underlain by gravel and sands at from 2 to 3 feet. Lime material occurs at from 3 to 5 feet. Moderate productivity. Tends to be droughty in midsummer. Yields increased by heavy fertilization, green manures.

Alton Cobbly Loam: Well drained, acid terrace soil. Lime material occurs at from 3 to 5 feet in depth. Hard to cultivate due to large amount of stones. Suited to general farm crops, pasture, woodland or wildlife. Should be productive for potatoes and beans with high fertilization, green manures or cover crops, and irrigation.

MASTER PLAN FOR FIRE

A master forest fire-fighting plan designed to cope with emergencies anticipated in the critical blow-down area of the Adirondacks has been virtually completed by the Department. The plan calls for a series of manpower and equipment mobilization meetings in a half-dozen key areas between Department representatives and State and local agencies concerned with both public and private fire protection.

Those who are familiar with the blow-down areas realize that the wet summer has given us only temporary respite; a dry fall—or any dry period for several years to come—would confront us with an extremely critical situation. Department field men in particular are convinced that sooner or later, barring the most extraordinary good luck, we're going to have serious fires on our hands. Even complete public co-operation won't eliminate the danger; lightning starts lots of fires.

In view of this situation, Department Foresters are now calling conferences of State and local representatives in order to make up a pool of all available fire fighting equipment and manpower. Once organized, this pool will be on a stand-by basis. Plans will be mapped to deal with any fire in any critical area —and to deal with it using the combined resources of the whole area.

Meetings are now being scheduled tentatively in the Saranac Lake, Old Forge, Indian Lake, Lowville, Cranberry Lake and the Lake George areas. Participants are expected to include the Red Cross, Fire Chiefs' Association, Mutual Aid in Fire Protection Agencies, Town and County Highway Departments, the wood using industries, lumber contractors and commercial and private forest owners.

YOUR SUBSCRIPTION

To Renew: (1) Use the postage-free envelope that is mailed to you upon expiration of your subscription. Simply detach from statement, insert money and mail. (2) Renew early, using postage-free envelope that is furnished with the next-to-last issue of your subscription. To insure prompt attention be sure to write your name and address as it appears on your mailing label; include the code.

The Code: Many subscribers are not familiar with the code used by our Circulation Department. If you will examine your address label you will notice two numbers separated by a dash (—); for example, (6—1). The 6 is the volume number and the 1 is the issue number. (6—1) is the current issue; if that's your code number, your subscription expires with this issue. Remember there are six issues to each volume. Please mention your code when making inquiries about your subscription.

Change of Address: Please send both *old* and *new* addresses plus code. The post office will furnish you with the necessary forms. Six weeks are required by our mailing agency for this operation.

CLOSED AREA MAP

Salvage Report (4)

SINCE the publication of our last report on the blow-down, salvage work in the blow-down area has been proceeding at an accelerated rate. A total of 105 different salvage projects was advertised prior to August 1. Of these, 62 bids were approved for contracts. The estimated quantities included within these 62 projects are 145,000 cords of pulpwood and 16,000,000 feet of mixed hard and softwood sawlogs. The total contract consideration amounts to $631,382.

Because of the fact that the estimates upon which the advertisements were based were on the conservative side, the eventual return to the State will probably exceed this amount by at least 100 per cent.

During the month of August an additional advertisement will be placed in various newspapers in the State which will include at least 10 additional projects and a readvertising of those previously advertised but not sold. This will bring the total number of projects determined upon as requiring forest fire hazard reduction to approximately 115. If and when the total 115 projects are placed under contract, the material involved will be approximately 350,000 cords of pulpwood and 22,000,000 feet of sawlogs. However, the shortage of manpower is being felt to an increasing degree as time goes on, and most of the lumber jobs are undermanned at the present time.

The fallen timber on all of the campsites within the devastated area has been cleaned up and the merchantable portions removed. Manpower has not yet been available to remove many of the stumps or to remove the limbs and other portions of the injured trees which were not merchantable. However, all of the campsites are open and are occupied.

As to recreational trails, steady progress has been made in clearing them. Many have been opened up because of their value to the Bureau of Forest Fire Control, but have not been sufficiently fireproofed to permit their use by the general public. The same thing applies to a number of fire truck trails and to some of the trails leading to fire towers; they are open, but the fire hazard necessitates their posting against public use.

Furthermore, as actual conditions within the heavy blow-down areas become better known, the necessity for keeping the public out of such areas becomes more and more apparent; there is acute danger not only of fire, but of loss of human life and property. In the most critical areas, this condition will almost certainly prevail for several years. The mere removal of pulpwood and sawtimber and the lopping of tops does not by any means make these areas safe at the present time, and in certain areas it may be a long time before even these measures can be taken.

In view of these facts, the Department has felt it necessary to post the most critical areas against public use. The only major tract so closed is shown on the map above, but in addition all areas where salvage operations are in progress or planned have been posted, as have a number of trails. The Department proposes to enforce such posting without fear or favor. We profoundly regret having to do this, but feel that it must be done.

FOR YOUR INFORMATION

MUSKRAT MARSHES

Most owners or operators of muskrat marshes recognize the wisdom of trapping to secure a sustained annual fur yield. Experience makes it possible for them to work out a fairly close approximation of the number of muskrats which should be trapped from their marsh areas each year to maintain an adequate food supply while assuring that a sufficient number of muskrats shall remain as breeders.

It is, however, often difficult and sometimes impossible during the regular open season to trap the required number of rats from the marsh to secure such balance. Severe storms, sub-zero temperatures or high water conditions may prevail during the open season to prevent a normal harvest. In some cases, too, the Department may, by order of additional protection, close a county or counties to muskrat trapping because of a generally low population. An operator of a marsh situated in such closed area, who by careful management has a trapable surplus of muskrats, would thereby lose the opportunity to harvest the fur crop necessary to the continued balance of the marsh.

In such circumstances marsh operators may now take advantage of a law enacted April 10, 1951 to apply to the Conservation Department for an extension of the muskrat trapping season providing they have previously registered their marsh with the Department, and after registration, demonstrating to the Department that there is need for such an extension.

To take advantage of the opportunity offered the law provides that marsh operators shall *each year* register their marsh with the Conservation Department *on or before September 1st.* Marsh registration applications are available from the office of the Bureau of Inland Fisheries in Albany or from the District Game Manager in your area.

CONSERVATION WORKSHOP

The photograph below was taken at the DeBruce Conservation Workshop for State Teacher College personnel. Teaching the teachers (who teach teachers) how to teach conservation was the joint task of the Conservation Department and the State University of New York when the workshop convened this past June.

This was a pioneer project, the first of its kind ever held in this country. Five faculty members from each of the eleven State Teacher Colleges attended the week-long workshop, where technicians combined talents to demonstrate (1) that natural resources are vital to our American way of living, (2) that they are being wasted, and (3) what can be done about it and how.

The teachers found out first hand what the Conservation Department thought school children should know about maintaining the fundamental natural resources of soil, water, forests, fish and wildlife. As a result of this workshop, each of the eleven State Teacher Colleges is conducting one of its own this summer. There, prospective and in-service teachers will learn the fundamentals of conservation.

Shown in the photograph is Hugh Wilson, Cornell Extension Soil Conservationist (center foreground), demonstrating with the aid of a rainmaker device (sprinkler pipe in center) the fundamentals of soil conservation and water management on the farm. Plot on left represents up and down hill plowing; center plot is the same but with straw cover, and plot on right represents contour plowing. A normal 2-inch summer thundershower was simulated to show what happens on each plot under these conditions, and results were measured in a jug that took the run-off from each plot. No water or soil ran into the jug at the right; about a quarter of a jug of relatively clear water came off the center plot, and more than a jug full of soil laden water came off the plot at the left. Note the water-retaining ability of the contour plowed plot. The importance of soil conservation is readily seen here.

HUNTING ACCIDENTS

As most of our readers already know, the Department is now co-operating with the National Rifle Association in a pioneer program to reduce the number of hunting accidents among junior hunters. According to law, hunters under 17 years of age who have not previously held a hunting license are required to undergo—and pass satisfactorily—a course of instruction in safe handling of firearms before being issued a license.

The law, now in effect for the second year, empowered the Department to designate the National Rifle Association as its agent in giving this instruction. This designation was made, and last year the NRA established a most enviable record in doing its job for us.

More will be said of this in our next issue. Meanwhile, however, the NRA is extremely anxious to recruit additional instructors for this program—persons who are now (or would like to become) NRA members and who are qualified to give the four-hour course in safe gun handling which the Association has established.

We need more instructors. If you know anyone who is already doing this work for the NRA, ask him to recommend you for the job. It won't take much of your time, and the cause is certainly a worthy one. Or you can write directly to the National Rifle Association, 1600 Rhode Island Avenue, Washington, D. C.

Sportsmen's clubs, how about it?

FIRE NOTE

Merrill Phoenix, who operates a commercial air service at Inlet, and who has a full appreciation of the danger of forest fires, recently spotted a smoldering stub while flying in the vicinity of upper Round Tract Pond, Hamilton County. Mr. Phoenix landed his plane on Raquette Lake and immediately notified Forest Ranger Mose Leonard of the fire. Accompanied by four men carrying a portable power pump and 1½" unlined linen hose, the Ranger was able to approach within 400 feet of the fire. The pump was set up on "No Luck" Brook and 400 feet of hose strung to the fire, which was quickly extinguished.

In commenting on this fire, Ranger Leonard remarked that he was changing the brook's name from "No Luck" to "Lucky". He also vouchsafed that in all of his experience in fighting forest fires, this was the first time that he had strung hose 12 feet above the ground. That was the height of the blow-down debris between the pump and the burning stub—which was promptly extinguished.

Assistant Game Research Investigator

Salary: $3036 at time of appointment and increases by five annual increments to a maximum of $3726. (In addition, a cost of living bonus will be paid during the 1951–52 fiscal year.)
Civil Service Status: Open competitive civil service examination is required.
Positions (Number and Location): There are fifteen Assistant Game Research Investigators assigned to wildlife management and research projects.
Promotion Opportunities: There is a direct line of promotion to the higher grade position of Game Research Investigator and District Game Manager.
Working Conditions: With the exception of office duties, work is performed out-of-doors the year round. It involves considerable walking in rough, wooded and mountainous country, frequently under adverse weather conditions. The basic working week is five days and 40 hours. However, this may vary considerably in accordance with the demands of various assignments. Employees in this title earn 20 days vacation each year and earn one day of sick leave credit each month. Unused sick leave may be accumulated to a maximum of 150 days. Reimbursement is made for expenses for travel, board and lodging while on official business away from official headquarters.
Retirement: Membership in Retirement System compulsory. Employee contributes on payroll deduction basis. Variety of retirement benefits.
Duties: Under general supervision, assists a Game Research Investigator or District Game Manager in carrying out game management activities or game research investigations. *Research*—making game, cover, habitat and game food surveys. Conducting surveys relating to shelter, general habits, predatory relationships, and effect of weather and hunting take on game abundance. Assisting in the evaluation of data gathered in the course of investigations and the preparation of reports. *Management*—Planning and supervising wildlife habitat improvement work on private and State-owned lands such as tree and shrub plantings, protection from grazing, construction of wildlife marshes, etc. Making cover type maps and wildlife management plans. Advising landowners on game problems and control of nuisance plant and animal species. Evaluating work results and preparing reports.
Qualification requirements: *Physical:* Good physical condition, active, and freedom from any disabling mental or physical defects. *Education:* Graduation from a four year college course, including courses in the natural sciences and game management and in at least three of the following: forestry, vertebrate zoology, general biology, systematic botany, mammalogy, or ornithology. *Experience:* One year of satisfactory experience in work on a professional level in natural game research or management in the field of wildlife conservation.
Special Knowledges and Skills: Good knowledge of present day practices and techniques involved in game management and research. Must be able to carry out satisfactorily assigned game management and research projects. Ability to meet and deal effectively with the public and to speak before public groups. Possess integrity, resourcefulness, good judgment, and good character.
NEXT ISSUE: *Junior Forester.*

LETTERS TO THE EDITOR

WITH MAP AND COMPASS

Dear Sirs: I enjoyed very much your article "With Map and Compass" in the June-July issue of your fine little magazine. I think, however, that it was sadly lacking in the very important point of magnetic declination. I believe that in this location, when running say a 10-mile course, if this were not taken into consideration the inexperienced hiker would find himself approximately 2½ miles from the point at which he expected to arrive.

I have traveled the woods for years and was delighted to see this article. I might add that I am in complete agreement with you in that an experienced woodsman should carry a compass. Let's have more articles along these lines.

F. R. Magee, Greenwich

Dear Sir: I would like to tell you to the best of my knowledge that somebody could really get lost if they followed Mr. Davis' instructions on how to orient a map.

On the bottom of each topographic map is a symbol known as the angle of declination. On every one of my maps I have continued the magnetic line of this symbol with a straight-edge to the top of the map. I then lay the compass on the map, and as the compass needle points to magnetic north, all you have to do is coincide the needle with this extended line and the top of the map is then pointed to true north.

Mr. Davis may have implied this very same thing, but it was quite indefinite and I wanted to help clear it up.

Robert Hooker, Canajoharie

• *Al Davis pointed out in his first paragraph that he was addressing himself to beginners, not to experienced woodsmen such as Messrs Magee and Hooker appear to be. He therefore deliberately omitted the subject of declination. We doubt, however, if there are many people in the country who know more about this subject than Al. Davis, whose writings on the use of the compass in the woods have been reprinted by the Federal government and a good many states. With regard to the above letters, Mr. Davis comments as follows:*

To Mr. Magee: "The article was written to point out that the novice in the woods has at his disposal some mechanical aids readily available to help him get started on a short trip. A ten-mile trip is not recommended for a novice, especially now after the storm of last fall. A beginner reading a small watch compass and following a course would not do it very accurately, and according to the law of averages there should be a certain amount of compensation in the course he would actually travel. Better to hit the road a mile away from your car than not to get there at all."

To Mr. Hooker: "You are quite correct with regard to orienting your map with magnetic north, which you determine by extending the magnetic arrow on the U.S.G.S. maps. But most of these maps were surveyed about 50 years ago. The magnetic needle has changed on the average about 3 minutes a year since that time, and therefore the declination shown on them is now about 2½ degrees off.

"All this has to be taken into consideration if you are running a line with a compass made for that purpose. But for ordinary walking through the woods with an occasional reference to an ordinary pocket or watch compass—so as to maintain a general direction and not get turned around—magnetic declination is not important. The article was not intended to describe how to hit an exact spot, but rather how to avoid getting lost and confused because the functions of the compass were not understood at all.

"For the past 150 years, the magnetic variation of the needle has been moving in the same direction, i.e. westerly. But now it has stopped and is slowly starting to move in the opposite direction. In view of these and other considerations, I doubt if the subject of magnetic variation should be introduced in an article for the beginner. To do so might discourage the occasional woods traveler, and might confuse him so much that he would not use the compass at all. But he should use it, because the cardinal points are important to him."

SMOKING RANGER

Dear Sir: Now that Mr. Charles H. Farley of Oswego has asked a question about the Smoking Ranger (page 35, April-May) I'd like to ask one too. If I'm not greatly mistaken that's a fine picture of Clint West, one of the finest gentlemen and best trout fisherman I've ever had the pleasure of sitting in the same boat with while fly fishing on Lake Colden. Am I right?

Claude L. Wallace, Rochester

• *Right, in every way.—Editor*

PROGRESS REPORT

Gentlemen: We built and erected in a wooded section of our pond two duck houses as recommended in a past issue. We were delighted with 50% occupancy first year.

The 10,000 trees and 2,200 multiflora rose plants, Plan of Conservation Operations, planted this spring are coming along O.K.

We are turning approximately 100 acres into reforestation. The above planting, our third of trees.

Wm. B. Malcom, Syracuse

PISTOL PERMIT

Gentlemen: In answer to a letter in *The Conservationist* of February-March 1950, I was led to believe that a 16-year old could obtain a pistol permit for hunting and fishing. After spending considerable time filling out numerous papers and getting the O.K. from the Police Department, the Judge informed me that I was too young to have a permit. What gives? Can a 16-year old carry a pistol for hunting and fishing?

John Serth, Utica

• *It's up to the judge; he can issue the permit or not, as he sees fit.—Editor*

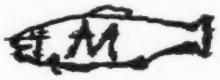
ANOTHER STRIPER

Dear Sir: I thought it might be of interest to you to know I caught a striped bass 10½ inches long in the Oswego River Barge Canal one mile south of the dam at Phoenix on July 3. The fish was caught on worms while still fishing. Due to the lack of light no pictures were taken, and due to the lack of length it could not be kept for exhibition.

Murray Walker, Phoenix

MARKED FISH

Dear Sirs: On Sunday, May 20 my son and I were fishing on Great Brook about a half mile below the Woods Corners and New Berlin highway. My son caught a brook trout about seven inches long which he would ordinarily return to the stream only this one had these markings on each side.



It was rather hard to tell whether the marking was meant for the letter "M" or whether it was a pair of XX. Anyway we could not see any evidence of any fin clipping. Maybe some other fisherman marked it with some kind of a pencil and returned it hoping to catch it again some time.

Maybe this info doesn't amount to a damn but anyway here is $5 for my renewal to *The Conservationist* for five years.

Laurence H. Edgerton, Greene

• *We think you're right about the marking—that it was done by some other fisherman. Or possibly it was the result of some accident. Thanks for the five-year vote of confidence.—Editor*

SABATTIS AT NEWCOMB

Dear Editor: My great-grandfather, Joseph Chandler, moved from Granville to Newcomb in 1816, and my grandmother was born there in 1819. Their home, a two-room cabin, I think was four miles above Newcomb village and grandmother told us of seeing moose come down off the mountain which the cabin faced.

And at times, a band of Indians would come to the cabin and ask to stay all night. So her father would turn the kitchen over to them and take his family into the other room. Then she told us about Mitchell Sabattis' father who was a good old Indian, and on whose lap she often sat. She said she played with Mitchell Sabattis, so I cannot believe he was born in 1801 as Donaldson believed. But he (Donaldson) does say that obituaries and guide books give different dates, some being 20 years apart. But I think he must have been somewhere near my grandmother's age. (Born 1819).

My uncle and brother took a trip north on their bicycles every autumn and several times went to Newcomb and looked up the site of the Chandler home. Since then we have been there several years and the last time we found it set out to young trees—I think probably a State project.

Mrs. Hartwell Smith, Lake George

LAKE GEORGE CAMPSITES

Dear Editor: I have a suggestion that might be helpful to campsite residents of Lake George, particularly those in the island groups of the narrows.

In your recreation circular on Lake George you have an excellent map naming the points of interest, especially the location of the islands. Last year I got a permit for an island called *Hen and Chickens*. Upon asking where it was I was told—south. There was not anyone who could tell me just where it was located.

My suggestion is to furnish the caretaker's headquarters with a map like this, displayed where anyone can look up this information. It might save someone else from the trouble I had last summer.

Leo M. Bernard, Albany

● *Thanks for the suggestion. It was acted upon at once.—Editor*

CATS & DOGS

Dear Editor: I noticed another letter in this issue of *The Conservationist* concerning dogs and cats—and as I have read several similar ones, I wish to say a few words in defense of these animals.

I believe that I am correct in saying that ever since the first cat and the first bird were put on earth they have been enemies by nature. Cats had to rely on birds and mice, etc. for survival just as many other animals had to do. Just because a dog or cat has become domesticated is no reason for him to lose all of his natural instincts.

We happen to have four children and our children have two cats and a dog. These animals are loved and cherished and I wouldn't advise any hunter over 21 years of age to take a pot-shot at our pets, no matter what section of the law he may be shooting under.

I realize that our dog may commit conservation crimes when she runs in the fields every once in a while. I also realize that our cats probably catch birds once in a while. That's the nature of these beasts, and I couldn't wipe out the natural instinct even if I tied them up or went with them each time they went outdoors.

As long as there are people who love and own dogs and cats—and people who love birds better—a problem will arise. I guess the only solution is to "live and let live" and try to be tolerant.

In closing I would like to comment on our small neighborhood. It is well populated with children and animals (13 children, 7 cats, 6 dogs)—and we are also well populated with robins, orioles, finches, wrens, sparrows and many others. In fact, we have had three nests on our front porch, two of which are now housing their second set of young for this season. And we had two cats.

Mrs. Haskill Fenner, Kenwood

● *Please don't misunderstand us; we're not against cats and dogs, and most of us here own one or the other, or both—and feel about them just as you do. But we think that everybody would be better off (including the cats and dogs themselves) if they were kept where they belong and properly cared for. Too many people don't bother to do that.—Editor*

JUNIOR MARKSMEN

Dear Sir: You are familiar with the rather recent ruling made by the Boy Scouts of America in lowering the minimum membership age to eleven years.

At the Council's summer camp, we have a very active and popular marksmanship program. Our question is this—can we legally allow these eleven-year-old youngsters to take part in the marksmanship program offered to those boys from twelve on?

Richard Barabino, Instructor,
(Suffolk County Council No. 404)

● *Legally, the minimum age is still 12.—Editor*

VOLUME 1, NUMBER 1

Dear Editor: How about a re-print of the first issue? Many of us have a complete collection, minus Vol. 1, No. 1. Even if the single copy costs 25c or 50c I am sure it would be a sell-out and would be no expense to your Department.

I had the issue myself, but "loaned" it; it never returned.

John J. Duquette, Saranac Lake

● *Sorry, but the type was broken up and the plates scrapped long ago.—Editor*

GUN LAW

Dear Editor: Please let me know if I am able to use a 8 mm semi-automatic rifle that was able to take 10 shells but which I have altered and reduced to 6 shells maximum, for deer and bear hunting.

Anthony Mueller, Middle Village

● *If you have to pull the trigger for each shot, it's an autoloader and you can use it where rifles are legal. If one pull of the trigger will fire all the shells, it's an automatic and you can't use it.—Editor*

DUCK TRAPS

Dear Editor: In the April-May 1951 issue of *The Conservationist*, Page 38, there are two photographs of duck traps by Mr. Imer Carpentier of Chazy, New York. The type of trap used is one very similar to that used here in the Territory. These traps have proven to be very effective in years gone by, but have failed us the past trapping season.

We would very much appreciate you contacting your trapping specialist and furnishing us with some of the finer points of duck trapping.

Joseph Medeiros, Conservation Biologist,
Kahului, Maui, Territory of Hawaii

● *The trap referred to was developed by this Department, and in the past four years has taken 20,000 ducks for banding. Specifications were forwarded to Hawaii.—Editor*

DEADEYE DICK, 91

Gentlemen: In your February-March issue of *The Conservationist* I read your article about John Cotton, 86, who shot the 175-pound buck last fall.

I am enclosing a picture of Sylvester Neer, Sr., of Granton, who is 91 years old. He shot the deer in the picture during hunting season last fall near Afton in Chenango County. It hog-dressed 210 lbs. Mr. Neer was nearly exhausted trying, alone, to get the deer off the hill.

In the deer contest sponsored by Babcock, Hinds and Underwood in Binghamton last fall, the heaviest deer was 208 lbs. We think Mr. Neer did remarkably well.

June E. Peck, Granton

● *He sure did.—Editor*

MORE ON ROBINS

Dear Editor: Read in the June-July issue of *The Conservationist* the piece about Winter Robins —which brought to mind another incident.

We and five other families have homes in a secluded spot on the Severn River about six miles above Annapolis. There are some very fine holly trees near us and a few years ago there was one that was particularly beautiful—it had so many berries it was more red than green. However, in early December along comes a flock of robins, I hesitate to say how many hundred, and in a very short time stripped every berry from that tree and proceeded on their merry way.

Mrs. John J. Allen, Washington, D. C.

AUSABLE PROBLEM

Dear Sirs: In your April-May issue I was very interested in your article on trout restoration in the Adirondacks. The most outstanding instance of this problem is in the fabulous Ausable River just above the dam at Wilmington. A few years ago there was a great abundance of big trout everywhere above the dam, as the deep cold water is just perfect for the propagation of big trout. But then a short time ago some joker put yellow perch and bullheads in and now they are beginning to run the place. True, one still gets good trout, but the perch are getting stronger every year. While still fishing in places that are known to be terrific trout holes, I catch about one trout to every five perch. Though the perch don't seem to take a fly, neither do the trout any more, but then maybe that's more my fault than the fish. Nevertheless, I think that only the extensive stocking is holding off the inroads of the pan fish.

I still don't think it is too late to do something about the situation though. They tell me that at one time there were also pike in the river but they went out when the new dam was put in and the water had to be let out. When the new dam was made a bulkhead was made to let out the water, but it was never finished. Instead of the usual doors to let out the water, there are just a few boards holding the water back. I am not sure just what can be done to remedy the situation, but seeing that poisoning would not be advisable, I thought maybe you could look into the situation and find out if the water could be let out, and if so, if it would be effective.

George Morhous, Wilmington

● *We were aware that an occasional perch was caught in the Ausable River. However, we did not know that perch were as abundant in the stillwater at Wilmington as your experience would indicate.*

As you probably know, perch are present in a number of lakes and ponds including Lake Placid, Mirror Lake, Connery and Owen ponds, which are tributary to the Ausable. Apparently, they have been present in these waters for quite a number of years. Thus, with these sources of supply of perch, it probably is not possible to keep perch out of the lower parts of the river. We hope to eradicate perch from some of the smaller ponds which are tributary to the river under the Adirondack Trout Restoration Program. That may help some.

The fact that perch and pike have had access to the river for a number of years and have not become more firmly established suggests that they do not find suitable conditions in much of the river. It is to be hoped that this lack of suitable conditions, plus the heavy stocking which the river receives, will help to keep the perch under control.

Under conditions that exist, I do not think that the draining of the dam at Wilmington would be effective in controlling the perch—W. M. Lawrence, Senior Aquatic Biologist

TRACKS

Dear Sir: I have noticed pictures of tracks in your magazine at times. I am wondering if you can identify these tracks that I happened across last winter.

They had been coming and going to a carcass of a dead cow that lay in the woods a mile south of Chittenango. I would say they were at least 2½ or 3 inches across—too large for a fox. I followed them a little way until they went into some pine needles, etc. I'm pretty sure they aren't dog tracks. But I could be wrong. What do you think?

As you can easily see in picture #2 the tracks go under the sapling that's bent over. I doubt if there is over a foot or at the most 1½ feet of space for the animal to squeeze under. And I personally doubt if a dog would go under it. I think a dog would go around the obstacle. Perhaps a bobcat or lynx.

Robert Jay Lasher, Chittenango

● *Undoubtedly a wildcat. Your deductions concerning the fox and dog are good; few dogs will squeeze under an obstacle that they can go around.—Nick Drahos*

BEAR SPEEDOMETER

Gentlemen: A friend of mine who is a subscriber to your magazine told of an article appearing in same about the speed at which a native black bear could travel. A short time ago another friend of mine who is an ardent trout fisherman had an occasion to find out. He was going over a State-kept mountain road which was in fairly good condition and as he came round a sharp turn in the road he found a full grown black bear sitting up in the middle of the road. He stopped his car and watched the bear for a short time until the bear started down the road. He followed in his car keeping close to the bear as possible. The bear kept putting on speed and ran for approximately ¼ of a mile ahead of the car just before it decided to leave the road. The speedometer on the car showed slightly over 30 miles per hour.

Leslie R. DeLaney, Sayre, Pa.

TROUT AUTOPSY

Dear Editor: Last Saturday I went trout fishing in Stillwater Lake in Putnam County with a friend and amongst our catch was one trout of such unusual characteristics I thought I'd write and find out "what goes."

This fish was a speckled trout, 11½ inches long but much heavier than another we caught that was 12 inches in length. He was thicker thru the back and meatier all over and had a regular paunch like one of those over-stuffed, pot-bellied Southern large-mouth bass. In fact he was half again as deep thru the middle as his conventional streamlined pals.

To satisfy my curiosity, I decided to perform an autopsy and find out what he had been feeding on. His stomach was chock full and when I opened it, out rolled 30 or 40 small fresh water clams, shells and all. They were about ¾ of an inch across and perfect miniatures of regular full-sized clams. The shells were easily "popped" when pressed together but I don't know whether that is a characteristic of clams at that tender age or if "Old Fatty's" gastric juices had started to work on them. In any event, judging from the build of that fish, he must have been a very efficient eater with a discriminating appetite.

I had never heard of trout eating baby clams before and to check further, I opened the stomachs of the other four trout we caught. None had even a single clam.

Perhaps someone dropped a copy of Duncan Hines' book, "Adventures in Good Eating" in that particular lake and this trout read it. At any rate he qualifies as both a gourmand and a gourmet.

C. Albert Jacob, Jr., Scarsdale

● *I do not recall having a previous record of any kind of mollusk from this lake. It may interest you to know that there are species of small clams which never get much more than ¼ inch long or even less. Chances are, therefore, that the little clams you found were not babies but adults of a small species.*

Mollusks have been recognized as valuable trout food for many years. In fact the British have maintained food nurseries or "stews" along some streams for the purpose of rearing snails and small species of clams as well as other trout food species.

Stream trout are believed to establish fairly definite feeding areas, of course subject to change for various reasons. Less is known of individual habits of pond fish, but perhaps they also tend to establish rather definite feeding ranges. Perhaps this trout picked an unusually good area, or perhaps he simply had a little more curiosity or enterprise than other trout and so discovered this new and productive source of food for himself.—C. W. Greene, Senior Aquatic Biologist

ALBINO RED SQUIRREL

Dear Sirs: On Monday of this week my neighbor's cat brought in a white red squirrel. By the time she had discovered what it had, the cat had chewed the head off and she did not try to save it for mounting. However, they saved the tail.

The animal was snow white with pink eyes. I should think a true albino. Would you please tell me how often such a curiosity occurs in the red squirrel family and if any have been found before? This lady is 77 years young and had never seen such a thing before.

Mrs. Walter Edwards, Northville

● *We have very few records of albinism in this species. Both albinism and melanism (the black phase) are much more rare in red squirrels than in grays.—Editor*

OTTER AND CAMPSITES

Dear Editor: Nearly all the policies and activities of the Department seem well advised and framed for the best utilization of the outdoor resources of the State. There are two policies, however, which it seems to me are at least questionable.

(1) Relating to the open season for trapping otter, I can see no justification for it at the present time. Otter are not numerous in any sense of the word. They are moreover a beautiful, interesting and harmless form of wildlife. Unlike the beaver they are never plentiful enough to become a nuisance to anyone. They, in common with all other forms of wildlife, belong to the State, which simply means that they belong equally to all citizens of the State. Thousands of our citizens on their vacations want a chance to see the wildlife in the regions they visit. They want a chance to watch and photograph them. Until otter become far more plentiful than they are now, I can see no justification in any open trapping season for them.

(2) After an attempt on my part to camp in the Province of Quebec I am especially appreciative of the fine camping facilities offered by New York State. I cannot believe that any reasonable person would object to a small charge, say 25c or 50c per day, for the privilege of using these fine campsites. The money could then be used in acquiring additional campsites for public use.

William D. Young, Glens Falls

• *About otter, there are a lot of trout fishermen (especially in the Adirondacks) who won't go along with you; they've seen otter pick over the trout in their favorite ponds and streams. As with some other species, the Department has to try to maintain an otter population that will satisfy both you and the trout fisherman, not to mention the trapper. That isn't easy.*

As to charging for the use of campsites, there are a lot of objections: collection of fees, competition with commercial enterprises, commercialization of Forest Preserve lands, possible dissatisfaction if the same charge is made for a desirable tent site as for one less desirable, etc. But the idea has often been suggested—and considered.—Editor

OWL TROUBLE

Dear Sir: We enjoy *The Conservationist* immensely and being farmers and close in touch with Nature, we are true conservationists at heart. However, the past few nights I have been sorely tempted to destroy four screech owls who have taken to perching in the trees close to our house. I have been familiar with the eerie cry of the screech owl all my life but have never heard anything like the "conference" these four owls held the first night they descended upon us. My husband and I took flashlights to search the trees where these odd sounds were coming from, only to find these small owls "talking" to each other. We watched them for almost an hour and they didn't appear to be engaged in hunting or mating, just sitting around "chewing the fat."

The next night when they appeared—announced by all the robins in the neighborhood—we attempted to discourage another "conference" by shouting, clapping of hands and even firing a .22 rifle nearby. They are absolutely fearless and keep returning to our front yard trees each night.

Have you any explanation for this "conference" of owls, and what can we do to discourage them? We could use a little more sleep.

Mrs. Elmore Fraleigh, Red Hook

• *We really don't know. But you might try to capitalize on the natural friction within the owl family by putting a stuffed horned owl up in the trees.—Editor*

THE MAYOR AND THE PINTO

Dear Editor: In the February-March issue you show a picture of a spotted deer, shot by Wardner Haywood. I am enclosing some pictures of one that fell to my rifle near Childwold in 1907.

The other parties in the picture are: Henry Hanmer of Lake Placid and the celebrated Noah John Rondeau, "Mayor of Cold River." My friend and yours, a real man and a good sport, a good hunter,—one of the best.

Lewis H. Gillies, Nantahala, N. C.

FISH IN THE MOHAWK

Dear Editor: In the last edition of your magazine you stated that walleyes, smallmouth bass and red salmon have been placed in the Mohawk River. At Schenectady and below here the fish caught have a taste of oil, which we believe comes from the oil barges passing through. But I have never heard of walleyes or salmon being caught in this region.

I enjoy your magazine very much and am enclosing check for renewal.

C. L. Gage, Schenectady

• *Walleyed pike are stocked regularly in the more favorable sections of the Mohawk and are more or less common in the river up to and including Delta Reservoir above Rome. Various netting operations in the lower river, especially near Rexford, indicate that walleyes are quite common there.*

We have had many reports that these and other species of fish taken in this part of the Mohawk River taste oily. The taste might be derived from oil from the barges, but in any case this result of pollution is one not legally construed to be "injurious to fish life" and therefore is not subject to control under present laws.

As for the red salmon, I believe if you will read the paragraph again you will see that the statement about red salmon is general, not connected with the Mohawk River stocking. The salmon were stocked in ponds and lakes selected for suitability and also for conditions favoring a check of results. We do not consider the Mohawk to be suitable for this species, certainly not below Delta Reservoir.—C. W. Greene

GRIPER

To Whom it May Concern: What's wrong with fishing you are to supply us with? I fished from Croton sheds to Wingdale, Dutchess County, to Ten Mile River and it's the worst fishing I have seen in my 30 years of sport and believe me it smells. The answer? Not planting any new stock. So why?

Dr. Reed, Dover Plains

• *We got several of these cards, remarkably similar in text and handwriting but with different signatures. The answer? Stocking lists showing plenty of fish placed in these waters.—Editor*

PRESERVING MAPS

Dear Sirs: If you should need material some time, suggest you tell a good way to carry and preserve topographical maps on trips. May not be within scope of magazine—but a good subject nevertheless.

S. Erickson, Utica

• *Coming up next issue. Thanks.—Editor*

CREDITS

Pages 2-4, USDA, Soil Conservation Service, Gordon Smith; 6, Earl McGuirk, Fred Chambers; 7, N. Y. S. College of Forestry; 8-12, 34, 35, Nick Drahos; 13, 16, 17, 28, 29, Fred Everett; 14 15, Robert M. Roecker; 19, Earl McGuirk; 20, 21, Clayt Seagears; 23, Fred Chambers, Thomas St. Clair, Earl McGuirk; 24, Fred Everett, Earl McGuirk; 30, J. V. Skiff; 31, Fred Chambers; 33, Gerald J. Rider.

THE LICHEN

THIS started out to be a simple little hot weather piece about lichens. But oh brother! Before the windup we had a slug of notes on the theory of the solar system, the formation of the earth, the chronology of the upheaval of the mountains of the world, the method of computing the age of rocks by measuring the disintegration of their radioactivity, the chemical processes of chlorophyll and the ambiotic relationship of certain algae and fungi. Most of this has to do, it developed, not so much with the biology of the lichen as with a comprehension of the infinite patience of its work.

Lichens are little plants, half algae and half fungi, that go around making dirt out of rocks. Fortunately, they've helped make quintillions of tons of dirt despite the fact that a speck of dust per year is high class production for a lichen. But there are simply scads of lichens. And time means nothing, absolutely nothing, to them.

Once under a time (because there wasn't enough time behind to be upon) there was a huge whirling blob of extra hot gas out there in space. Then something gave. Nine pieces broke away from the big blob like fat sparks from a pinwheel. They arched off into space for various distances. They're still out there after a few billion years circling their parent sun at apparently undiminished speed. The earth is one of these nine planets—the third one away from the sun after Venus. Man has always been after Venus.

So, assuming this solar theory is correct, the earth broke from the sun as a blob of hot gas composed of many elements. The gas cooled like an ember from a fire, first into a mass of molten stuff surrounded by a gas which probably was steam. More cooling and the solids congealed. Some sank, like the iron. Some floated, like the granite and basalt. The lighter granite floated highest. Those two kinds of rock comprised the earth's crust. When it cooled further the steam fell like rain, pouring from the higher granite upon the basalt which formed the ocean beds. Then for a half-billion years the crust cracked repeatedly and heaved out were great masses of molten stuff to harden into rock.

One particularly violent upheaval nearly two billion years ago produced what remains of the present Adirondacks. Their rocks are the oldest substance known to man! The Taconic and Green Mountains were upthrust about 650 million years later. Then in 100 million more years came the mountains of New England and the lower Appalachians, next the Sierras, Rockies and finally the babies of them all—the Himalayas. Naturally they are the least eroded of the lot since they were thrust upward only 12 million years ago. The earth more or less settled down to its present geography just yesterday—25,000 years ago.

All that is merely to provide some conception of the awesome reaches of time—during which great parts of a nauseated earth's molten insides were spewed as rocks upon its changing crust.

Today that crust still would be mostly vast jumbled heaps of rock but for the two ageless processes of weathering—mechanical, by air, water and frost, and chemical, by the action of plants.

This brings us to the meat of our piece. Nor can anybody say it's about time. The first part was about that. This part is about the lichen to which time, as we have said, means absolutely nothing. For with those Adirondack rocks two thousand million years old are traces of graphite—a material of plant origin! The plant? Probably algae, the parent plant; the plant which combines with its apparently degenerate self to live and whittle where no other plant can live alone—on sun-baked bare rock.

Algae are rootless, flowerless, seedless plants composed of single cells or many-shaped strings of cells. Most kinds live in the water as per the picture. But *all* need moisture to survive. That's because their cells contain little green factories (chlorophyll) run by sun energy which take carbon out of air, and hydrogen out of water, to make the basic plant food called carbohydrate.

Nearly all plants have this chlorophyll. That is, all but the fungi. These queer plants, which probably are nothing more than degenerate algae anyway, have gone around so many millions of years snitching food from other plants that their own vittle factories went out of business.

A true fungus plant is just a snarl of whitish, translucent threads searching around for other plants, dead or alive, to feed on. Sometimes these threads mat up at certain points and grow into odd shapes like mushrooms (see picture). They have one ability that's pretty important; they're able to store up water for long periods like a grade A two-humped camel.

Now among the simplest kinds of algae are those that stain green the damper sides of tree trunks and old moist flagstones. This kind often blows around in the air. When it lands on bare, sun-dried rock it conks out—no moisture for its food factories. But suppose it runs into a fungus spore (a spore bears a single cell—the start of a fungus thread) on this same bare rock. They simply join in glad embrace. The fungus thread stores enough life-saving moisture for the algae to use while making enough food for both of them.

So the fungus wraps tightly around the green alga and they grow off together in a thousand different shapes. We call these shapes lichens. Several kinds are found commonly on rock that otherwise surely would be bare—little gray-green rosettes that are greenest after a rain because the fungus threads are more transparent when they're wet and show their green algae insides. It is on such sites that this strange plant company does its job of turning rock into dirt—preparing the way for higher plants.

At first they do this in two ways. The chemistry of their food factories dissolves the mineral salts in the rock. Their threads, constantly probing for moisture, pry into the microscopic crevices and break them apart. The dust—small fruit of long labor—blows in the wind.

The lichen colonies creep together, catch dust among the debris of their own decay. In time there's a foothold for moss, then ferns, then higher plants—the ones with seeds. Still more time and more decay. The plant material, little by little and year by year, grows deeper. It makes a stuff called humus. The rains and the humus make carbolic and other acids which attack the rocks beneath with power infinitely greater than the chemistry of the tiny lichen which began it all. So the sands and clays of chiseled granite grow deeper. Then the forest comes and down under the roots sink the rocks that Time buried.

IT'S a funny thing how Man will go off and leave his camp fires burning, and the forests too. It's a funny thing how Man will let the fertile soil wash out to sea, covering the basalt under the Continental Shelf of his heedlessness. The patient, limitless processes of Time mean nothing. Lichens don't give a darn either. They've been at the same job two billion years.

—CLAYT SEAGEARS

By Clayt Seagears

ALGAE, FUNGI *and their business partners ~ the* LICHENS

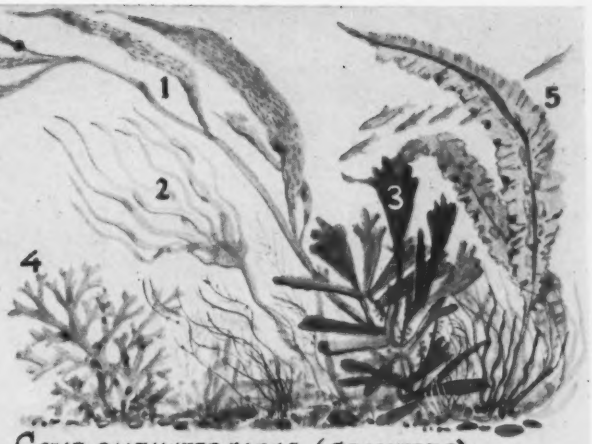
Often the simplest plants are the least known to us. Here's some stuff about them. It may help to make your junkets afield or astream a little bit more interesting.

ALGAE ~ These elementary plants are about the smallest *(see below)* and the largest. Most of the nearly 15,000 known kinds live in water. All require moisture to live - their green chlorophyll must have H_2O to make their food.

MAGNIFIED — STILL MORE MAGNIFIED — Cell

A Green Alga - *(Protococcus)* -teeming simple cells that give greenish hue to damp sides of tree trunks, shaded flagstones etc.

CHLOROPHYLL grains. Chlorophyll is an amazing little factory run by sun energy and making basic plant food out of air and water *that contains sun energy* - sort of like a battery. This life-giving food is carbohydrate. We must get it via plant chlorophyll.



SOME SALT WATER ALGAE (SEAWEEDS)

1 - Giant kelp - world's largest plant. May grow ½ mi. long! Important commercial source of algin.
2 - Fan kelp. Rich in iodine. Also source of algin.
3 - Dulse. Used widely as food, medicine & scent.
4 - Irish moss. Used for gelatin, blanc mange, soap.
5 - Sea tangle. Contains saccharine.

FRESH WATER ALGAE

Pond scum - matted green filaments commonly found in sunny shallow water. Effect is usually harmful since dense mats shade or choke other vegetation, clog swimming or fishing areas. Filaments are merely strings of cells. Many kinds.

Nostoc and Diatom - cells in gobs or strings of jelly on rocks or branches. Nostoc is usually the cause of slippery rocks. The fish food chain often begins with diatoms.

Blue-green algae have many forms but the most common are those that develop during hot weather in lakes & ponds, suspended like tiny "pea soup" granules. The water is then said to be "working."

Water Net. Bright green nets of tiny gauge each link usually a single long cell. Often found along shore in quiet ponds. Average net about 5".

Vaucheria. Many kinds but often appear as greenish yellow, slimy coral-like masses with many short branches. Usually attached to rocks, branches etc.

FUNGI - These plants have no leaf green (chlorophyll) and thus can't manufacture their own food. They must feed on stuff made by green plants. Like algae, they have no seeds. They grow from dusty spores -- stuff that looks like pollen. A fungus spore contains a single cell. FUNGI include moulds, mildews, yeasts, mushrooms, puffballs and even the microscopic - both very good & very bad - bacteria. *Now see how a fungus grows.*

A TRUE FUNGUS PLANT IS JUST A MESS OF TINY COLORLESS THREADS!

1 — 2

FIRST THE SINGLE SPORE CELL SWELLS (1) WITH FOOD AND DIVIDES IN TWO (2) AND SO ON INTO THREADS OF CELLS.

At first, BREAD MOULD IS JUST THESE THREADS — WHICH GROW SPORE CASES — WHICH BUST & LET OUT SPORES

mucho magnified

A MUSHROOM GROWS - *threads they mat up* — GILL AND ITS CROSS SECTION — *The lump grows — and expands so that "gills" appear which bear spores which drop off to start new threads*

A parmelia lichen

LICHENS

(An ALGA *plus* a FUNGUS)

CROSS SECTION OF LICHEN SHOWING FUNGUS THREADS COVERING ALGAE CELLS CONTAINING CHLOROPHYLL GRAINS

HOW COME THAT LICHEN: As we hope we said, algae must have moisture so their chlorophyll grains can make their food. When they dry up they kick off - as the algae on trees (SEE TOP LEFT) often do. Now true fungus plants (*those threads again*) retain water like a Grade A camel - and they can't make their own food ---- *Sooo* the simple alga and the simple fungus wrap up in each other for mutual benefit. And *that* makes a LICHEN ~ *thousands of kinds.... ideal communities.*

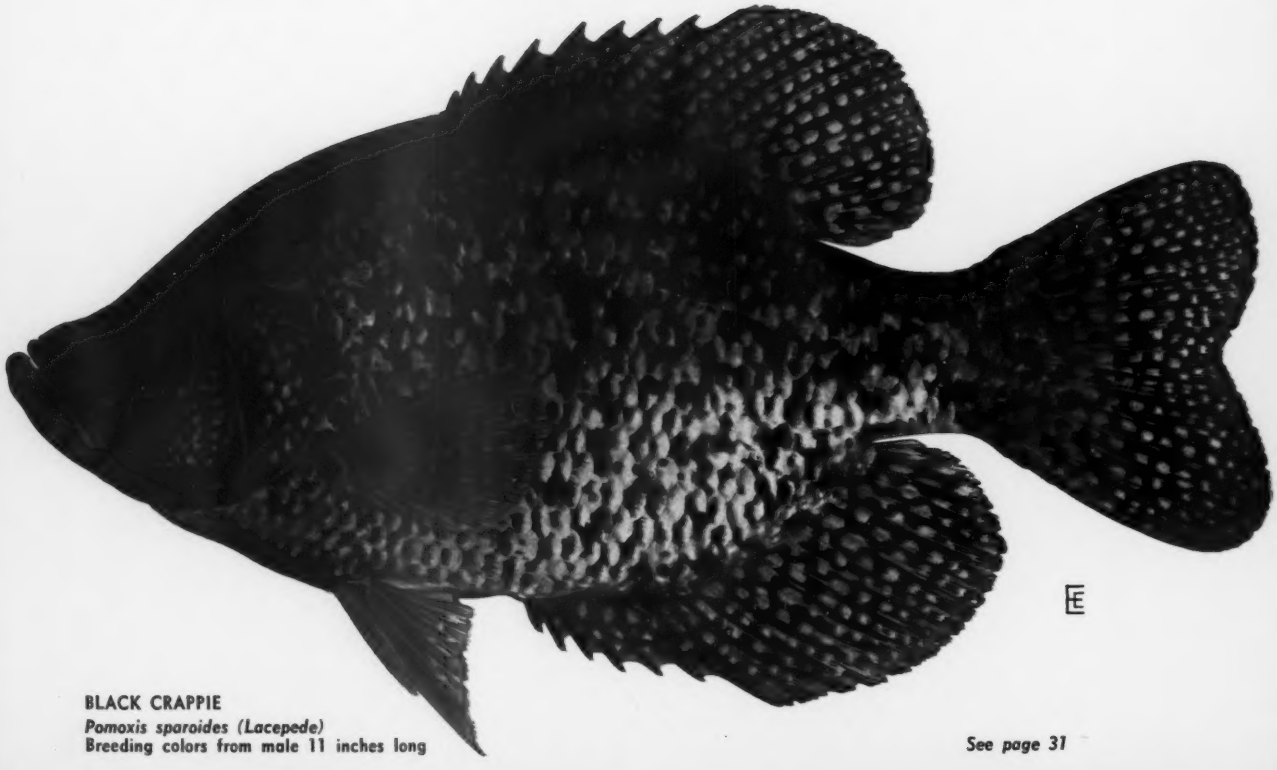
Old Man's Beard lichen on a spruce twig.

One of the Reindeer "Moss" lichens

Pyxie cups

CLAYT SEAGEARS

ROCK BASS
Ambloplites rupestris (Rafinesque)
Breeding colors from male 8⅝ inches long



BLACK CRAPPIE
Pomoxis sparoides (Lacepede)
Breeding colors from male 11 inches long

See page 31